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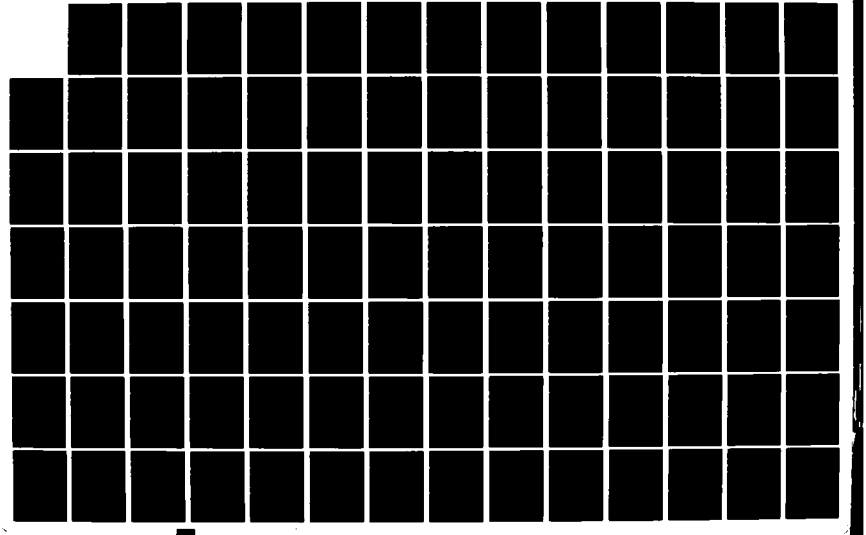

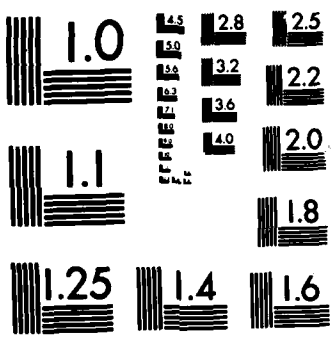

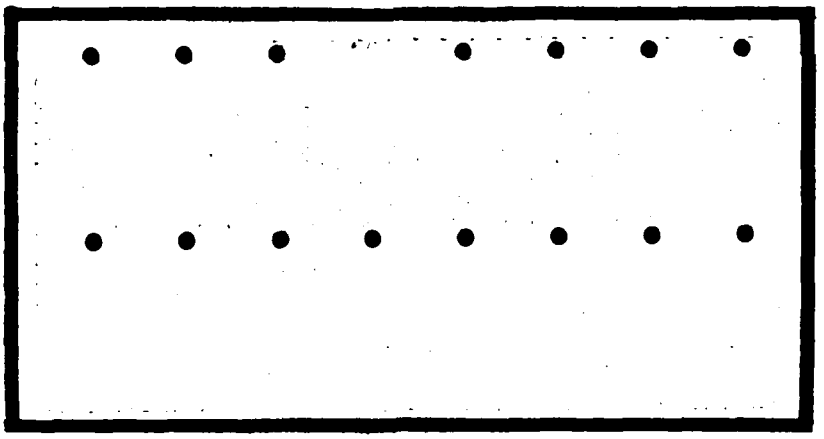

DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY (ATC)

AIR FORCE INSTITUTE OF TECHNOLOGY

Wright-Patterson Air Force Base, Ohio

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A QUALITATIVE ANALYSIS OF SAC AIRCRAFT MAINTENANCE

Douglas P. Cook, Captain, USAF
Harry J. Devault, Captain, USAF

LSSR 17-82

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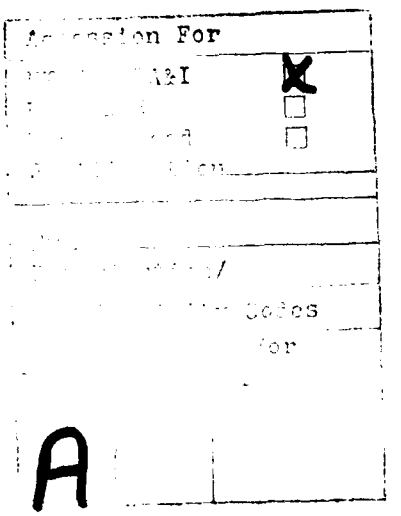

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Past research efforts in SAC aircraft maintenance have addressed singular issues. Little attention has been given to examine the holistic environment that encompasses SAC aircraft maintenance. The purpose of this study was to examine and identify problems within the SAC aircraft environment from the perspective of its personnel. From interview data obtained from the Air Force Human Resources Laboratory, WPAFB OH, it was found that the SAC aircraft maintenance environment could be categorized as follows: Methods Support, Work Environment, Equipment Support, Personnel Policy, Motivation/Morale, and Technical Support. Further, it was found that the above-mentioned categories could be divided into unique areas for specific analysis. The data revealed that every area and category could be prioritized by the percentage of negative statements within each area and category. A negative statement indicated that a problem existed in a given area and category. The authors found that all areas and categories contained a highly significant number of problems. Finally, a suggested format was offered by the authors to help SAC units to identify problems within their respective units.

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A QUALITATIVE ANALYSIS OF SAC AIRCRAFT MAINTENANCE

A Thesis

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Logistics Management

By

Douglas P. Cook, BA
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This thesis, written by

Captain Douglas P. Cook

and

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has been accepted by the undersigned on behalf of the faculty of the School of Systems and Logistics in partial fulfillment of the requirements for the degree of

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CHAPTER I

INTRODUCTION

Overview

United States Air Force war readiness and combat sortie generation rates depend on the efficient operation of combat crews and the technical capabilities of maintenance units. Aside from operations, Air Force aircraft maintenance units are large, complex entities that require management to plan, organize, assemble resources, motivate, and control (17:3). This study is concerned with the identification of aircraft maintenance problems so that aircraft maintenance units in the Strategic Air Command (SAC) can better manage their activities.

Generally, every SAC aircraft maintenance organization has some form of a problem identification process. However, the problems identified are usually concerned with the shortcomings of a piece of equipment or technical order. Similarly, research in Air Force maintenance units has addressed singular issues, not the broad environment. For example, many organizations have engaged in research concerning maintenance training and personnel selection in the last ten to fifteen years. Little has been done to take a holistic look at the SAC aircraft maintenance environment

to understand where the most severe problems are and which have the greatest probability of success in being solved.

This holistic viewpoint implies that the aircraft maintenance organization may be viewed as a system. According to Schoderbek, a system is defined as follows:

> . . . as a set of objects together with relationships between objects and between their attributes connected or related to each other and to their environment in such a manner as to form an entirety or whole [13:1-3].

This research does not address singular objects, but examines relevant objects that make up the aircraft maintenance unit. It examines the set of objects and their characteristics that form a maintenance unit in its entirety.

There are two underlying assumptions of this study. The first is that the people who perform, supervise, manage, and plan maintenance are the people who know its problems best. This assumption is similar to one of the primary concepts of a management technique called Quality Circles. Quality Circles and their ramifications will be discussed in the literature review. This study utilized the first assumption by asking SAC aircraft maintenance personnel to identify problems in their career field.

The second assumption of this study is that in examining SAC aircraft maintenance organizations as a whole, specific job and personnel problems will surface that can

give Air Force leaders a new perspective from which to solve these problems.

Air Force Aircraft Maintenance Organization

The Air Force has developed prescribed maintenance organizations and assigned responsibilities to carry out the Air Force mission. The intent of Air Force maintenance organizations, as established by Air Force Regulation 66-1, Volume I, is:

> Maintenance, as a functional element of the organization, is responsible for ensuring that Air Force materiel is serviceable, safely operable, and properly configured to meet the mission needs [22:2].

Because of the importance of maintenance to the Air Force mission, Air Force Regulation 66-1, Volume I, has indicated an organizational structure of a maintenance unit within a bombardment wing. A brief description of the objectives of a wing level aircraft maintenance organization follows.

Figure 1-1 depicts the organizational chart for a maintenance unit. Through this structure, aircraft maintenance at the wing level is concerned with maintenance production and for providing basic data inputs for maintenance engineering decisions (22:1-1). Maintenance production is the performance of equipment maintenance and related functions such as servicing, repairing, testing, overhauling, modifying, calibrating, configuring, and inspecting (23:1-1). Maintenance managers must ensure that an aircraft maintenance unit can maintain its aircraft in

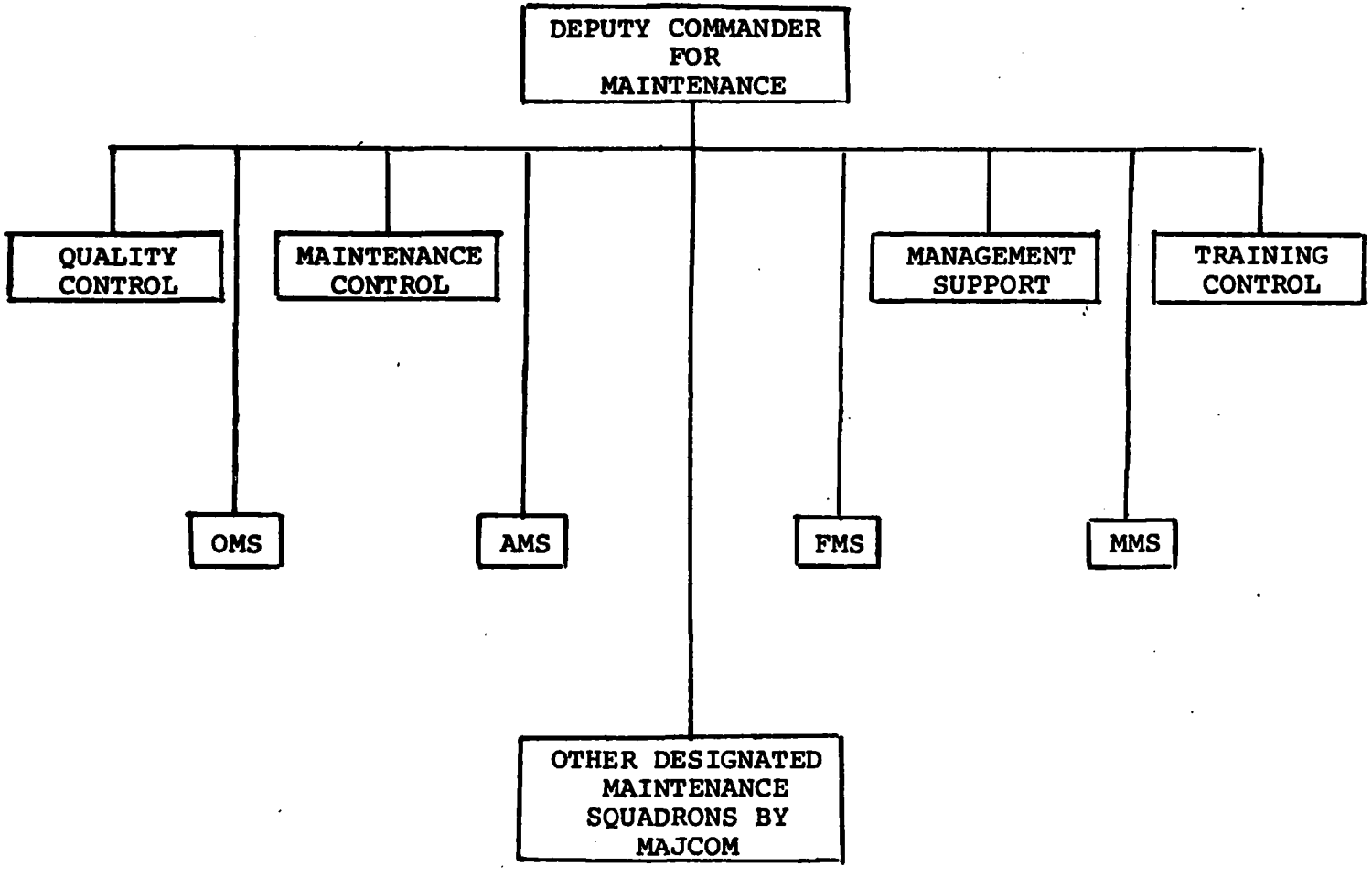

Fig. 1-1. Organizational Chart for DCM Complex (22:5)

a serviceable condition and in proper configuration. To maintain a maintenance capability, Air Force Regulation 66-1, Volume I, provides the following guidelines:

1. Set up plans and schedule to make sure that individuals are properly employed throughout the workshift.

2. Make sure that skill levels are distributed throughout the maintenance complex and on maintenance shifts to provide the best mission support, supervision, and training.

3. When resource deficiencies exist, request and justify additional resources to support a continuous workload or request temporary help to perform emergency workloads. Where resources are not available or cannot be made available, reductions in mission requirements may be necessary.

As noted earlier, maintenance production at the wing level is a primary function of the maintenance unit. A major objective of maintenance production is equipment maintenance. The main goal of equipment maintenance is to keep systems and equipment ready to perform their missions at the least cost to the Air Force (18:2). To accomplish this goal, Air Force Regulation 66-14 has identified the following equipment maintenance objectives:

1. Set up and maintain the maintenance capability to carry out Air Force operations at all times.

2. Make sure that Air Force maintenance organizations are designed, or are quickly adaptable, to support the wartime mission and that they can meet all operational needs.

3. Set up maintenance systems and methods that can support changing operational needs and technology.

4. Make sure that all Air Force material is serviceable, operable, and configured to meet the mission.

5. Make sure that maintenance planning starts in the conceptual phase of the acquisition process for each new system or equipment and is kept current throughout the life of the equipment.

Successful implementation of equipment maintenance at the wing level must be compatible with operational concepts, equipment design and logistic support constraints. Further, all major commands must prescribe a plan of action for each significant maintenance task for the system or equipment throughout its life cycle (18:7). For example, aircraft maintenance in SAC follows set policies and procedures that accomplish some of the following: ensure resources are needed to carry out maintenance, the maintenance production capability is considered when forecasting flying hour allocation, set up a system to screen all reparable material to make sure that only unserviceable items are sent to the repair activity and set up inspections, testing and other quality requirements (18:10).

The aircraft maintenance unit in SAC uses a functional design for managing and implementing its maintenance plan. As shown in Figure 1-1, the Deputy Commander for Maintenance (DCM) is the person who has functional control over all assigned maintenance personnel and equipment (23:2-1). The DCM provides wing maintenance directives vertically to his respective squadron commanders and division chiefs. Each major command consolidates all maintenance activities of that commander under one DCM. Within the maintenance organizations are various specialized squadrons. Each squadron has its own commander who is responsible for the activities and functions of his squadron. A brief description of the major squadrons within an aircraft maintenance unit follows:

1. Organization Maintenance. This squadron performs on-equipment maintenance that is in the capability of assigned personnel, equipment, and facilities (23:2-1). Typically, in SAC, the organizational maintenance has a staff element, alert force branch, transient branch, flightline branch, inspection branch and support equipment branch.

2. Field Maintenance. The field maintenance squadron does off-equipment maintenance through the capability of specialists, equipment, and facilities (23:3-1). Normally the squadron contains a staff element, fabrication branch, propulsion branch, aerospace systems branch, and AGE functions branch.

3. Avionics Maintenance. The avionics squadron repairs and maintains avionics systems and its associated equipment (23:4-1). The squadron has a staff element, communications-navigation branch, mission systems branch, automatic flight control-instrument branch, precision measuring equipment laboratory, aircrew training devices branch, and post attack command and central system functions (23:4-1).

4. Munitions Maintenance. This squadron performs the loading of munitions and maintenance of conventional and nuclear munitions, guns, missiles, weapons suspension and release systems, and associated support equipment (23:5-1). The munitions squadron contains a staff element, munitions storage and services branch, and equipment maintenance and explosive ordinance disposal capability.

The DCM and individual squadron commanders are responsible for the managerial activities of the organization. Additionally, personnel assigned to the unit as crew chief and maintenance technicians are the ones who actually perform the maintenance. They are located throughout the maintenance unit in various squadrons. Their assignment to a particular squadron is determined by the skills they possess. Typically, a crew chief holds the rank of staff sergeant and is responsible for the maintenance of an aircraft or another significant piece of equipment.

Additionally, he[1] may have several maintenance technicians working for him to accomplish maintenance tasks.

Individual managers, DCMs, and squadron commanders are responsible to solve management problems of a broad scope that are recognized as detracting from the accomplishment of the unit's mission. Their duties are not only technical, but people-oriented and resource-oriented, as well. Effective management requires a sound approach to both maintenance functions and complementary Air Force management programs (23:2-5).

Justification

SAC's primary mission is to maintain the ability to deter potential enemies from attacking the United States and, in the event the United States is attacked, to provide a second strike capability (20:1-7). The ability of SAC to carry out its mission relies heavily upon the reliability of SAC's aircraft and missiles and consequently its maintenance quality. To be effective and efficient, SAC needs to identify and solve its maintenance and personnel problems in the best way possible. Once significant problems are identified, SAC's management must be flexible and innovative to implement feasible solutions. It should be innovative in order to find better, more economical ways

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[1]Throughout maintenance, as in the rest of Air Force, there were many women serving in the roles we speak of. We did not omit them but have used the common masculine reference for ease of structure in this thesis.

of doing the job. It should be flexible to successfully cope with new situations. Both of these qualities are in ever-increasing demand.

One way of identifying significant technical and personnel problems is from the people who perform and manage maintenance at the wing level. Every member of a maintenance unit has some idea as to how to improve the system. Air Force managers must take necessary actions to insure maximum utilization of time, men, and materiel because of the increased costs of these resources. In the past, Air Force managers have generally neglected those individuals who actually perform, supervise, and manage maintenance in identifying its problems. The success of Quality Circles illustrates that workers do have valuable insights into the work environment, and that management should tap this resource in identifying, prioritizing, and solving work problems. By having SAC aircraft maintenance personnel at the wing level identify career-related problems, a new perspective from which the Air Force may attack these issues is available. Therefore, SAC may increase the chances of making significant progress in improving aircraft maintenance and making it a more desirable Air Force career choice.

Scope

This research was limited to data obtained from the Air Force Human Resources Laboratory (AFHRL) at Wright-Patterson AFB, Ohio. The analysis of data is restricted to SAC aircraft maintenance personnel stationed at Loring, Ellsworth, and Dyess Air Force bases in 1981. The data were collected from 100-105 interviews per base. The interviews were accomplished by researchers from the AFHRL, Wright-Patterson AFB.

Problem Statement

Historically, research concerning aircraft maintenance involved only singular issues. Researchers never have established a priority of these singular issues in a total scheme of maintenance problems. Research in aircraft maintenance has not taken a broad look at the aircraft maintenance environment. Further, research in aircraft maintenance has not tried to understand where the most severe problems are and which have the highest probability of success in being solved. A need exists to identify aircraft maintenance problems in SAC and to prioritize these problems so that Air Force managers have a workable scheme from which to solve these issues.

Research Objectives

The objectives of this research are to:

1. Identify problems in SAC aircraft maintenance units from the perspective of those personnel who perform, supervise, and manage maintenance.

2. Prioritize those problems so that research organizations and SAC commanders would be able to solve the problems.

3. Classify identified problem areas into an overall scheme that may be workable and easy to understand.

CHAPTER II

LITERATURE REVIEW

Overview

This chapter outlines the literature review of the areas proposed in this research. The chapter is divided into three sections. The first section of this chapter discusses the origin, process and examples of Quality Circles. The second section will examine the use of interviews to collect qualitative data. The final section of this chapter will present past research efforts involving aircraft maintenance units.

Quality Circles

The method used for the collection of data for this study was based on the assumption that the people who manage, perform, and supervise aircraft maintenance know its problems best. This idea is based on the concept of quality circles (QC). "In short, Quality Circles are a means of encouraging men and women to participate and render decisions that will improve quality or reduce costs [24:2]." QC are a form of participative management in which worker talent is recognized as a resource.

Origin of Quality Circles

Before World War II, the world viewed Japanese products as low priced and poor quality. The label "Made in Japan" was often translated as junk (5:10). To reverse this trend, the Union of Japanese Scientists and Engineers (JUSE) organized a quality control research group in 1949. In 1950, Dr. W. E. Deming, and in 1954, Dr. J. M. Juran were invited to Japan from the United States to lecture and teach their concepts of statistical quality control and the management of the quality control function (9:12). Their teachings embellished a seed of quality control which initiated the idea of QC.

The initiative for QC concepts came from Dr. Kaoui Ishikawa, a professor of engineering at Tokyo University. In 1962, the first QC were created and today one in every eight workers in Japan belongs to a QC, totaling over one million workers (9:12). In the late 1960s and early 1970s, United States' executives became concerned about low productivity and quality. They became interested in QC because of Japan's high quality and productivity. Japan was claiming its business success was partially due to QC. In October 1974, the first United States company began a QC (12:1). Wayne Reiker of Lockheed's Missile Systems Division formed a QC process which closely followed Japanese methods and training patterns. By 1977, Lockheed had established thirty QC which resulted in an estimated

$3 million savings (12:16). In 1981, QCs are being implemented in American businesses at a rate of increase of more than 150 percent annually (12:13). This is an attempt by United States firms to involve their workers in participative management.

Quality Circle Process

Current literature emphasizes that QC are a way of life, a philosophy, a management program which can enlarge and enhance a participate management team. The goal of QC is to improve both effectiveness and efficiency in the organization and also further the quality of both product and service (3:1). The process of QC is very simple and attempts to tap worker talents and abilities in decision making. The QC process consists of five distinct entities: (1) executive management, (2) program manager, (3) facilitators, (4) leaders, and (5) members. Each has an important role which must be in harmony with the whole or the entire program will not work successfully (5:51). If any link breaks, the process of participative management comes to a halt (5:92). A brief description of each entity's characteristics follows.

1. Executive Management. Top level management support is essential to the success of QC and several ways exist to show support (3:9). Executive management needs to establish a management environment which will encourage

middle level managers to take the QC program seriously and not consider worker participation as a threat to a manager's position. Secondly, enough corporate resources must be freed so QC members can identify, analyze, and solve problems (3:9). Some examples are official work time to conduct QC meetings, a meeting place, access to pertinent records, and initial and follow-up training, and access to staff specialists. A steering committee, comprised of top level officials, should be organized to resolve significant problems and give guidance to the program manager (3:9). The purpose of the steering committee is to establish boundaries for the QC program. The committee consists of representatives of every major directorate in the company. The committee does not drive the program, but steers the program. Other responsibilities include: establish program objectives and resources, provide guidance and direction, and incorporate QC throughout the organization.

2. Program Manager. An essential link in the QC process is the program manager. This may be either a full- or part-time position. The program manager directs and monitors the QC program under the direction of the steering committee. This person is responsible for implementing new QC. Probably the most important function of the program manager is monitoring the QC training program. He must identify training requirements, techniques, and materials. Also, the program manager will identify the training

required for the facilitators, QC leaders, and members (5:51). This position is management's primary point of contact in any matter concerning QC.

3. Facilitators. The facilitator is the buffer between the QC and program manager. The primary role of the facilitator is training, assisting, and overseeing QC leaders in the operation of their circles. The facilitator will promote and try to sell the QC program to the company's employees. The facilitator will serve as a teacher and provide orientation to managers. He coordinates the QC activities. He makes sure that all of the QC know what the other QC are doing. He integrates the QC into the rest of the organization. When a circle decides they would like to have some help from a specialist, for example, the facilitator will make the necessary arrangements. Finally, he is responsible for maintaining QC records of activities and keeping the program manager informed on these activities.

4. Quality Circle Leaders. QC leaders are chosen by the circle members. Leaders work with the facilitator to maintain continuity of the QC program. Leaders train circle members in QC techniques and they are responsible for the operation of the QC (3:10). The QC leader will conduct meetings, monitor research, and present possible solutions of problems to management.

5. Quality Circle Members. The most important aspect of QC members is that they are volunteers. They are free to join, not to join, or to drop out of a QC at any time (3:10). They will identify, analyze, and solve problems related to their work. When a QC has analyzed a problem and identified some probable causes which they cannot solve, they will invite a specialist to attend their meeting to help solve the problem. Also, they present potential solutions to management for approval. Normally, six to ten people of similar work areas form a QC. The circle will meet one hour a week, and all members will receive their hourly wage. Many members, once motivated by the QC process, will spend their own time on specific projects (5:52). The purpose of the circle meeting is to get members talking about their work-related problems. Once members are communicating among themselves, problem identification and solutions are found which can improve productivity and the quality of the organization.

The main function of QC is to identify problems and to implement solutions to work-related problems. QC do not address problems belonging solely to management or organized labor, but concentrate on work-related problems (14:682). Once problems are identified, QC members will decide which ones they will analyze and attempt to solve first. Once a final solution is determined, it is presented to management for consideration. If management

accepts the solution, the solution is integrated into the system. Finally, an evaluation of the solution determines its success or failure. The results of the evaluation are given to the QC for their analysis. The results of the evaluation are used as a reference for future problem analysis. Figure 2-1 illustrates the process and interactions of the QC.

Quality Circle success comes from training. Training is probably the most distinguishing feature of a successful QC (1:32). Initially, all levels of an organization are trained in QC concepts but this training should continue as long as the program exists in the organization. Also, training should have a downstream motion, whereby the program manager trains the facilitators, facilitators train QC leaders and, finally, QC leaders train circle members. Generally, group communication processes, quality strategies, problem analysis techniques, and problem-solving techniques are the main subjects of training (25:683).

The training will vary with the person's position in the QC process. For example, the QC leader will be trained in group dynamics, motivation, and problem-solving tools. Circle members will be trained in techniques to identify, analyze, and solve problems. These techniques include data gathering methods, Pareto analysis, problem prevention, stratification, brainstorming, histograms,

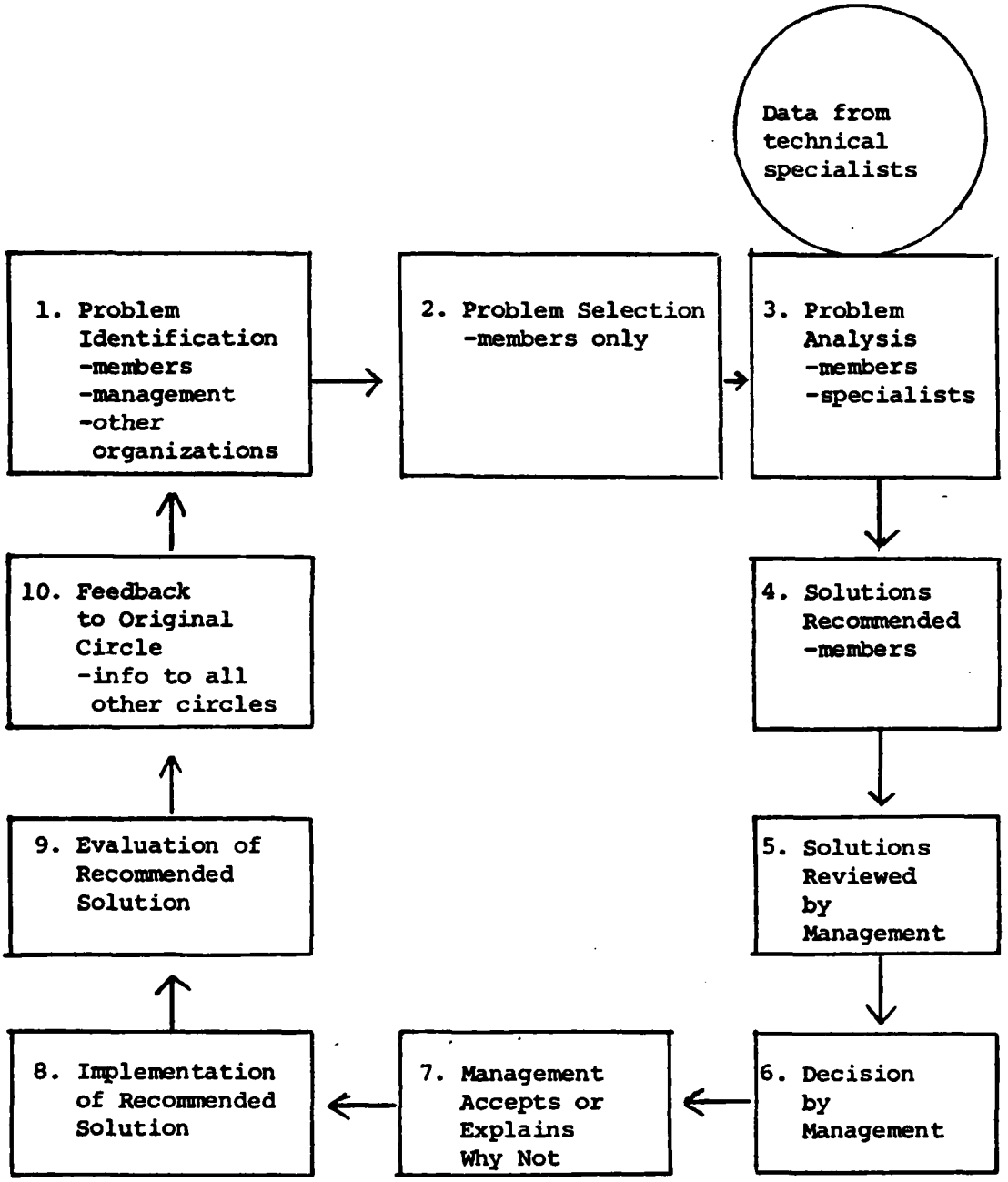

Fig. 2-1. Quality Circle Process

scatter diagrams, correlations, decision analysis, and presentation benefits (12:16).

Lockheed's Missile Systems Division program is an example of a typical training program (12:16). Management training is accomplished through a two-hour biannual block used to introduce middle managers to their responsibilities (12:16). Middle manager training ensures the management support essential to QC success.

Numerous QC success stories were present in all the literature reviewed, but very little empirical research is available to substantiate the success. A few examples of success stories are listed below.

1. A steel company revealed that in implementing a single modification suggested by QC, the company saved $48,000 a year by reducing the number of damaged wire rod coils (4:71).

2. In the Missiles System Division of Lockheed Corporation, an investment of about $700,000 to establish a QC program, produced savings of more than $5 million over a four-year period (4:91).

3. Johnson and Johnson tackled the issue of reducing the sixteen days taken from the arrival of materials at the plant to their eventual use. The QC program provided a solution that cut the time to six days and led to a savings of $480,000 (4:71).

The success stories listed above are all examples of tangible financial benefits, but there are some hidden values.

> Tangible benefits are important but hidden values also become evident: (1) better relationships with managers and higher levels of mutual respect and confidence, (2) the training has provided preparation to assume supervisory and managerial positions, (4) ultimately higher morale and more confidence, and (5) job satisfaction [24:6].

Not all organizations which have implemented the QC process have had success. In a study of twenty-nine companies with QC programs, eight were unquestionably successful. These eight firms had one feature that was common in all successful companies. The key feature of all successful QC programs was thorough supervisory management training (4:71). The purpose of such training was to provide proper understanding and gain supervisory tools for directing QC programs (4:12).

It is the successful rather than the unsuccessful cases of QC that tend to be publicized. However, there are definite misconceptions and limitations concerning QC. A discussion of their limitations and misconceptions will follow.

Literature overestimates the ease and speed with which a QC program can be initiated (6:16). A requirement exists to secure the support and involvement of workers and their unions. This support may be a monumental obstacle. Unions, for example, will look for assurances

that the QC program will not result in loss of jobs, that it will return to workers a substantial portion of the savings that are generated, and that it will be entirely voluntary (6:16). Unions may require a formal written agreement for these assurances. Case histories of successful programs may lead one to forget that there are costs associated with QC programs. A company must anticipate in some detail the costs that will occur (6:16). Organizational proponents of QC programs may be so excited about the possible benefits that they neglect to look at the costs and possible productivity losses (6:16). Failure to recognize costs can result in management withholding support and approval of the QC process. These are only a few of the misconceptions and limitations concerning QC. Empirical research is needed to determine the actual effect circles have on productivity and quality.

Very few empirical studies have been conducted to determine if circles actually improve quality and productivity. Two unpublished studies, one by the Air Force Leadership and Management Development Center (LMDC) and the other by the Air Force Institute of Technology (AFIT) reported some empirical findings on QC. Both studies investigated circles at Homestead AFB, Florida. Six QC were inaugurated in the Civil Engineering Squadron at Homestead AFB during the period of 10 September 1980 to 1 May 1981. These circles were provided with an

orientation and initial training on merits and techniques of QCs followed by regular meetings designed to identify and resolve work problems (15:3).

The Organizational Assessment Package (OAP) was given to the entire squadron before the initiation of Quality Circles and the OAP was used to measure the effects of the circles (1:2).

> The OAP is a 109 question survey which was designed to conduct management consulting services in the Air Force and to conduct research on Air Force systematic issues. The results of the survey are the primary means for assessing an organization across a number of attitudinal dimensions (motivation, pride, job satisfaction, training) [1:2].

Past OAP surveys were given to the entire squadron as a basis of comparison. Only two sections within the Civil Engineering Squadron were involved with the six QC. The two sections that were involved during the entire period were combined and compared to the rest of the squadron that had no involvement in QC (1:3).

LMDC used analysis of covariance as the statistical technique for comparing the pre and post tests. They found that "Task Significance" and "Need for Enrichment" were two factors which changed dramatically (1:3). Individual career intent was 58 percent in the QC group, while the control group's career intent was 28 percent. Possibly, this difference may denote a positive increase for job satisfaction. The study also noted that average

man-hours per job prior to QC initiation was 3.42. After initiation the study showed a reduction to 3.24 (1:6).

The study concluded that the assessment of QC implementation is not definitive. Researchers felt the increase in career intent and the decrease in man-hours were positive indicators (1:7). The study recommended that future studies give more attention to measuring the problems solved and assessing other QC units.

A similar study was conducted by AFIT, where the OAP was the measuring tool. Analysis of variance tests were conducted to determine if there was a difference between the pre and post test data (15:6).

The findings were really quite similar to those of the LMDC study.

> The configuration of results tend to support the conclusion that QC Circles groups initiated at Homestead AFB, Fl had little, if any, influence upon the constellation of work related attitude measures contained in the OAP. There was no significant post-test differences between experimental conditions. In addition, minimal change over time was observed within the QC Circle group's responses to OAP measures [15:4].

The researchers emphasized that these negative results should be interpreted with caution. They believed, that only after several QC studies, can we draw some definite conclusions (15:10). Also the researchers noted six limitations of the study.

1. Statistical tests employed are not the most rigorous tests for the data. They are prone to Type I error (15:10).

2. Circles were not started at the same time, therefore some circles had not reached maturity (15:10).

3. Data was not obtained on productivity measures, which would include turnover measures, absenteeism rates, and cost savings (15:11).

4. There were demographic differences between treatment groups. Therefore, the groups were not equivalent (15:12).

5. Researchers suspected that employees transferred in and out of the experimental condition with considerable regularity (15:12).

6. Finally, the sample size was small (15:12).

In addition to the above conclusions, the researchers recommend more studies to help overcome some of the listed problems, especially sample size and productivity measures. Finally, studies should not be directed solely to the Homestead effort, but to other Air Force organizations as well (15).

Interviews

The interview, by definition, belongs to a class of methods that yield qualitative data (7:15). Several methods are available for gathering qualitative data; however, each method has its limitations. For example, the self-administered questionnaire is a low cost way of collecting data because of the reduction of interviewer

costs. The disadvantage of this method is that the response rate may be low and the sample population may not be completely random.

The purpose of an interview is to obtain information through face-to-face confrontations. Probably the key to gathering information by this method is that the interviewer is able to investigate directly the thinking processes of the subject.

> The interview allows the interviewer to go behind mere outward behavior, aids him in checking his external observations, and enables him to study motivations, emotional responses, and social processes as they are reflected in human experiences and social situations [26:207].

Mechanical means or observation cannot ascertain significant memories of the past and plans of the future. Verbal responses and nonverbal reactions may open a whole new train of thought.

> An answer is not merely a response to a question, but a stimulus to progressive series of other relevant statements about social and personal phenomena which might indicate cause-effect relationship [26:20].

Interviewing can be a revealing method for gathering information as indicated above, but there are several additional advantages. A few of the additional benefits listed below give added credence to the interview method of obtaining information.

1. Interviews can be used with illiterate subjects or subjects with reading difficulties (16:68).

2. The personal interview usually yields a high percentage of returns because most people are willing to cooperate with the interviewer (10:79).

3. The interview can yield a perfect sample of the required population because practically everyone selected for the interview can respond to this approach (10:79).

4. The information obtained is likely to be more correct than that secured from other techniques because the interviewer can explain the questions to the subject. This will help to reduce false or inaccurate answers (16:68).

5. The validity of an interviewee's response may be assessed to some extent immediately (16:68). This may cause the interviewer to probe for additional information concerning questionable answers.

Despite the advantages of interviews for obtaining data, limitations do exist that can jeopardize the value of the collected data. For example, the subject frequently modifies facts either consciously or unconsciously. Also, the subject may also suffer from faulty perceptions, memories, lack of insight, and inability to articulate (26:208).

The subject may be only half of the problem because interviewer bias can also jeopardize the value of collected data. Hyman conducted a study concerning interaction processes involved in interviewing. His study confirmed the

following facts: interviewers often approach their subjects with a prepared set of expectations as to how the latter will answer certain questions (26:208). Further, the interviewer develops these expectations in the course of the interview on the basis of early or incomplete responses (26:208). The interviewer bias of prior expectations may invalidate the whole interview even though some of the information obtained is valid (26:208).

Another problem with the interview method is that faulty perception and ill-defined goals may direct the interview. Misunderstandings arise when questions involve usage of technical terms or unfamiliar expressions that may be meaningless to other people (26:204). A great deal of effort must be expended toward defining specific goals of the interview and accurate questions to overcome this limitation.

Along with the limitations, some disadvantages are directly associated with the interview method. The following list contains only a portion of the disadvantages.

1. The interview is generally more costly than other techniques (16:68).

2. The training of interviewers is often a long and costly process (16:69).

3. The interviewer may adjust the manner in which questions are put to the subject due to fatigue or lack of interest (16:69).

4. Characteristics of the interviewer and subject and their combination may influence the collected data (16:69).

It must be noted there are limitations and disadvantages to all methods of data collection. Therefore, the selection of the correct data collection method depends on the research project. Once the method is selected, the researcher should recognize the limitations and disadvantages of the method. Once recognized, the researcher can employ procedures to reduce the effects of the limitations.

> The limitations of the interview can be partially overcome by: (1) employing non-directive techniques in prolonged free flowing interviews; (2) using carefully constructed questions in which the subject matter is consistent with the research objectives; (3) standardizing the ways of asking questions; (4) standardizing the ways of recording interview data; (5) supplementing interviews with projective techniques, that is, using procedures in which the respondent is given an opportunity to interpret freely certain selective materials or situations and to give overt expression to his hidden conflicts and anxieties [26:210].

These limitations will probably still affect the data collected, but they will have a reduced effect. The lack of standardization in interviewing may lead to greater interviewer-subject variation, and the neglect of this problem will invalidate the findings of any research effort (7:24).

Past Research

Research efforts conducted in aircraft maintenance have addressed singular issues. Researchers have not examined the aircraft maintenance environment from a holistic point of view, but rather from the perspective of one area. Some of the singular areas studied will follow. They serve as examples of aircraft maintenance research.

Maintenance Task Identification and Analysis Study

This study conducted by the Management and Technical Services Company of Philadelphia sought to provide an analytical technique for the development of aircraft maintenance job performance aids (8:3). Job performance aids are used to identify job tasks and then determine the scope, content, and method of job performance. This analysis tried to answer the following questions: What tasks are required? At what maintenance level should specific tasks be performed? What instructions must be provided to accomplish the job task? What support equipment is needed? What are the most efficient, understandable steps for a technician to accomplish the task (8:21)? By analyzing these questions, researchers at the Management and Technical Services felt they would create a complete, accurate, and understandable way to perform a specific maintenance task. The analytical technique used to identify a job task was for the researcher to use the actual

equipment in a representative configuration for hands-on analysis of the maintenance task (8:22). This in turn was related to who would use the equipment, the technician's level of expertise, and his experience in performing the task (8:22). The specific maintenance task was examined from its identification through the support of outside sources to finish the job.

This study did not use any aircraft maintenance personnel for inputs to provide possible deficiencies in existing job performance aids. Rather, the study was conducted using fellow researchers as subjects to perform a given job task in an environment configured similar to an aircraft maintenance unit.

DCM Handbook

This study, written by two studies of the Air Command and Staff College, described the aircraft maintenance environment to a newly assigned DCM. The study included a discussion of the organizational structure of an aircraft maintenance unit and addressed subjects ranging from safety to personnel (17:2). The study attempted to explain the general characteristics of aircraft maintenance management and what the DCM's responsibilities are. Little was discussed concerning the nature of specific aircraft maintenance problems. As with the previous study, the DCM

Handbook study did not examine the aircraft maintenance environment from the perspective of its assigned personnel.

Air Force Inspector General Findings

From June 1980 to May 1981, the Air Force Inspector General (AFIG) conducted a series of inspections to evaluate training policies, program guidelines, and methods in support of Air Force requirements for technically trained enlisted personnel. The effort included inspection of training development functions during weapon system training both in resident and nonresident training (19:1). This inspection was conducted as a result of prior AFIG findings citing problems in training policy, and program guidance in preparing aircraft maintenance technicians. Some training problems included lack of detailed training planning guidance, and organizational, manning and standardization/evaluation program deficiencies at Air Training Command technical training centers (19:3).

The AFIG recommended that Air Force guidance be developed to plan all levels of technical training. This would be done through the use of an office of primary responsibility to manage training development actions (19:4). Another recommendation was for the Air Force to develop a new system of training standards (19:4). Finally, the on-the-job training program policies should be managed by one central agency and all training for managers of the

on-the-job training program must be improved (19:4). The Air Force should provide systematic guidance for training feedback programs to ensure optimum use of available feedback and provide program management at the base level.

Maintenance Posture Improvement Program

Probably the closest effort to examine the aircraft maintenance environment was through a maintenance management system called Maintenance Posture Improvement Program (MPIP). MPIP was instituted by the Air Force in 1975 to correct deficiencies in the maintenance management system and to reduce manpower requirements (2:26). Its stated purpose was to establish a continuing program to review, analyze, and evaluate the effectiveness and efficiency of equipment maintenance in the Air Force (2:26). Major air commands were directed to form working groups to consider and develop proposals which would improve procedures and concepts of aircraft maintenance.

One of the most significant factors of MPIP was the authorization to deviate from existing regulations to test the changes under consideration by the commands (2:26). This program attempted to open the way for developing imaginative improvements to the maintenance management system. MPIP tried to give maintenance managers the opportunity to attack and correct the causes of dissatisfaction expressed by the maintenance technicians. Further, MPIP

was an attempt to create a maintenance management system capable of providing the incentives and motivational factors necessary to sustain a stable work force. Some of the efforts to improve aircraft maintenance created by MPIP was the creation of the Centralized Intermediate Logistics Concept (CILC) and Production Oriented Maintenance Organization (POMO) (2:27-28).

Briefly, CILC modified the three levels of maintenance: organizational, intermediate, depot. Rather than each base performing organizational and intermediate level maintenance, the function of intermediate level maintenance would be performed at locations known as Centralized Intermediate Repair Facilities (CIRF). This was intended to reduce manpower needs at the base level. Another manpower reduction created by MPIP was POMO. POMO was designed to fully utilize a maintenance unit's assigned personnel (2:28). The stated purpose of POMO was to attack the issues of the maintenance technician's unrest and dissension by allowing him to perform the tasks for which he was trained (2:28). Today, POMO is restricted to those organizations having a tactical mission.

CHAPTER III

METHODOLOGY

Overview

The methodology of this study is qualitative. A qualitative methodology is necessary because the emphasis is on the identification of career-related problems and the description of the aircraft maintenance environment from the perspective of those who work in it. This point of view is explained by Patton as follows:

> Quantitative measures are succinct, parsimonious, and easily aggregated for analysis; quantitative data are systematic, standardized, and easily presented in short space. By contrast, the qualitative measures are larger, more detailed, and variable in content; analysis is difficult because responses are neither systematic nor standardized. Yet the open-ended response permits one to understand the world as seen by the respondents. The purpose of gathering responses to open-ended questions is to enable the researcher to understand and capture the points of view of other people without predetermining those points of view through prior selection of questionnaire categories [11:28].

This chapter is divided into five sections. The first section provides the sources of data and information used in the study. The second section contains the procedure for determining the subject sampling and scheduling of subjects. The interview procedure is described in the third section. The fourth section describes how the data were identified and prioritized for analysis. The chapter

concludes with a listing of assumptions and limitations associated with the methodology.

Data Collection

Data was collected for this research through the use of open-ended interviews. The number of interviews used in this research was obtained from three SAC bombardment wings located at Loring AFB, Maine; Ellsworth AFB, South Dakota; and Dyess AFB, Texas, in 1981. These three wings were chosen to represent typical SAC bombardment wings. They were used because their geographic location was representative of SAC bases located in the northern, middle, and southern tiers of the United States. Another reason the bases were picked was that the wings were assigned to the two numbered Air Forces in SAC; Loring AFB was assigned to 8th Air Force, Ellsworth AFB and Dyess AFB were assigned to 15th Air Force.

The data were collected by researchers working for the Air Force Human Resources Laboratory (AFHRL) located at Wright-Patterson AFB, Ohio. The AFHRL was currently conducting a study to identify and prioritize significant problems in the aircraft maintenance career field throughout the Air Force. In this study, separate data-collection visits were planned to each headquarters of the major commands in the Air Force and their respective reporting units.

Subject Sampling and Scheduling

In planning the types of personnel to be interviewed, researchers at the AFHRL obtained data from every level and specialty relevant to aircraft maintenance (21:7). Several weeks prior to the data-collection visit at each SAC base, a personnel roster was obtained from the Military Personnel Center listing all members of the wing maintenance organization (21:7). Their aim was to conduct at least 100 interviews per SAC base. From the roster, a random selection of names with desired maintenance skill level and specialty code (AFSC) at each organizational level of the aircraft maintenance unit was chosen. A list of the squadron and organization, AFSCs, and individual names was sent to the unit with the understanding that the named individuals would be provided to the extent that schedules permitted. If substitutions were made, the substitutes would be from the same organization and of the same AFSC and sex originally listed. Figure 3-1 shows the types of personnel requested at each base. A representative number of interviews were scheduled for the day, middle, and night shifts.

Interview Procedure

The interviews conducted by AFHRL researchers were approximately one hour in length (21:13). Each interview was an open-ended, private, one-on-one process. The

Deputy Commander Maintenance/Staff

1. Deputy Commander Maintenance
2. Wing Maintenance Supervisor
3. Job Control Officer
4. Quality Control Technician
5. Maintenance Control Technician
6. Plans and Scheduling Technician
7. Training Technician
8. Mobility Technician
9. Analysis Technician
10. Aircraft Maintenance Quality Control Officer
11. Supply Operations Officer--Material Control
12. Inventory Management Specialist
13. Maintenance Manager--Maintenance Control

The following aircraft maintenance personnel were obtained from the Organizational, Field, Avionics, and Munitions Maintenance Squadrons:

1. Squadron Commander
2. Aircraft Maintenance Officers
3. Aircraft Maintenance Supervisors
4. Aircraft Maintenance Managers
5. Various technicians, supervisors, officers covering all work areas and work shifts

Fig. 3-1. Subject Sampling (21:7)

interviewer introduced himself and the sponsoring agency, AFHRL. He briefly outlined the goals of the interview and stressed that the interview was confidential and voluntary. A privacy act statement was provided to reaffirm the confidentiality of the interview.

The interviewer filled out a biographical data sheet on the subject. This sheet is shown in Figure 3-2. Questions concerning the subjects' race, number of dependent children, marital status, and if the subjects' spouse was a military member were a part of the biographical data sheet (21:13). Each interviewer had a set of procedures for use in conducting the interview. It contained the interview structure and a series of open-ended questions. The interview procedure is shown in Figure 3-3. The interviewer asked the subject the following questions: What do you think could be done to improve Air Force maintenance? What do you think could improve your work and attitude on the job? What do you think is the best thing about this squadron? Organization? What do you think is the best thing in the Air Force in general? These questions could be asked in any order by the interviewer.

Data Categorization

The information generated from the interviews was categorized according to the following areas: technical competence, motivation/morale, equipment support, methods

BIOGRAPHICAL DATA

BASE CODE: _____ NAME: _____ SUBJ # _____

AGE: _____ SEX _____

AFSC PREFIX: _____ AFSC: _____ AFSC SUFFIX: _____ SEI: _____

JOB TITLE: _____

MIL/CIV CODE: _____ MIL GRADE: _____ CIV GRADE: _____

DUTY TYPE: _____ AFRES/ANG STATUS: _____

TIME IN SERVICE: _____months TIME IN MAINT: _____months

TIME SINCE HANDS-ON: _____months TIME IN MAINT: _____months

CMD/AGCY CODE: _____ SUPPLEMENT: _____

CMD LEVEL CODE: _____ SUPPLEMENT: _____

ORGANIZATION-POSITION DATA: (1) _____ (2) _____

DCM _____ MMICS _____ ADMIN _____ PRO/MOB _____

TNG. MGT _____ PROD. ANAL _____ QC/QA _____

PLANS/SCHED-DOC _____ JOB CON _____ MAT CON _____

AGS _____ EMS _____ CRS _____

OMS _____ FMS _____ AMS _____ MMS _____

UNCODABLE _____

SUPPLEMENT: _____

SQUADRON: _____ WEAPONS SYSTEMS _____

INT. DATE: _____y _____m _____d TIME: _____

INTERVIEWER: _____

IF ANG OR AFRES:

TIME IN ACTIVE DUTY _____months

TIME SINCE ACTIVE DUTY _____months

Fig. 3-2. Biographical Data Form (21:18)

1. Introduce yourself and organization.

2. Briefly discuss project goals.

3. Stress confidentiality and voluntary participation.

4. Present Privacy Act Statement.

5. Collect Biographical data.

6. Ask what kind of work subject does.

7. Ask: What do you think could be done to improve Air Force maintenance?

   What do you think could improve your work and attitude on the job?

   What do you think is the best thing about this squadron? The Air Force in general?

8. Thank the subject.

Fig. 3-3. Interview Procedure (21:20)

support, work environment, and personnel policy (21:20). These categories cover the broad environment of SAC aircraft maintenance. Based on these categories, the information from the interviews was placed in the categories in accordance with the following definitions:

1. Technical Competence. Technical competence was defined as the amount of training aircraft maintenance personnel need to perform their jobs. This includes training received from technical school, on-the-job training (OJT), supervisors, and officers. Further, this category may be defined as the perceived technical competence of technicians, officers, and supervisors.

2. Motivation/Morale. This area was defined through the amount of job satisfaction, job status, job involvement, desire to complete a job correctly, patriotism, discipline, and off-duty factors such as living conditions, housing, recreation, and social interaction received.

3. Equipment Support. Equipment support to perform a maintenance task was concerned with availability and condition of hand tools, test equipment, special tools, protective clothing, spare parts, bench stock, and prime equipment.

4. Methods Support. Methods support included those items that provide written direction in accomplishing a maintenance job. This includes condition and availability

of technical orders, local work rules, regulations, job scheduling, and forms preparation.

5. Work Environment. The aircraft maintenance work environment was divided into three areas: physical, psychological, organizational. Within the physical area the following considerations were made: cold/heat, lighting, noise, space, facilities, and transportation. Psychological considerations were work, supervision, and pressure. Finally, the organizational area involved job structure, manpower availability, and work distractions.

6. Personnel Policy. Personnel policy was defined by selection into the Air Force, job, assignments, retention, transfer, pay, benefits, and enlisted incentives.

The data categorization scheme was designed to allow the interviews to be placed in the six categories. One of the objectives of this research was to identify problems from the perspective of the aircraft maintenance personnel. A second objective was to establish a rank order (priority) of the categories from the total percentage of negative statements made within a given category. A negative statement is defined as one that reveals a problem. For example, let us say that 100 total statements were made in a given category. Of the 100 statements, 90 statements indicated a problem existed in the category. Therefore, we can say that 90 percent of the total 100 statements were negative. To pursue this example further,

let us say another category contained 200 total statements. Of the 200 statements, 100 statements indicated a problem existed in that category. We can say that 50 percent of the total 200 statements were negative. Thus, in this example, the category that contained 90 percent negative statements was ranked first while the category with 50 percent negative statements ranked second. It is fairly obvious that the total number of negative statements was derived by summing all the negative statements within a category and dividing that sum by the total number of statements generated in that category.

This procedure had two purposes. First, it identified the total number of negative statements in a given category, thereby indicating what problems existed in aircraft maintenance. Secondly, this procedure allowed the researchers to rank order the categories in an understandable priority. A byproduct of this procedure gives the reader of this research a total percentage of positive statements generated. That is, a total percentage of statements is provided that shows no problem existed and the interviewees were pleased with present conditions. Similarly, it was anticipated that a number of statements would be made that indicated that neither a problem existed nor that the subject was satisfied with present conditions. This particular classification was called uncommitted. In

both cases, the percentages derived were found in the same manner as for negative statements.

Assumptions and Limitations

1. All interview data collected by the AFHRL researchers were assumed to have been documented correctly.

2. Each interview conducted was done in an unbiased manner to the best of the interviewer's ability.

3. Interview data collected were honest and true representations of each subject.

4. The total percentage of negative statements per category was interpreted as such by the researchers of this study.

CHAPTER IV

DATA ANALYSIS AND RESULTS

Overview

An analysis of the data from the AFHRL was conducted to describe and indicate problems that existed in the SAC aircraft maintenance environment. The data collected was from the perspectives of the personnel who manage, perform, and supervise aircraft maintenance in SAC. This chapter discusses the analysis performed on the data and the results obtained. The first section of this chapter will rank the six categories solely by the total percentage of negative statements made per category. This will show which category was perceived by the maintenance personnel to have the most problems in terms of percentage of negative statements generated. This section will also emphasize areas within the categories receiving the largest percentage of negative statements. The second section will show summaries of subjects' ages, AFSCs, military grades, number of years in the Air Force, and assigned weapon systems. Finally, this chapter concludes with a summary of the data analysis.

Ranking of SAC Aircraft Maintenance Categories

A total of 314 aircraft maintenance personnel were interviewed from three SAC bases. Maintenance personnel assigned to Dyess, Ellsworth, and Loring Air Force Bases generated 3030 statements about the six categories listed in Chapter III: Technical Competence, Motivation/Morale, Equipment Support, Methods Support, Work Environment, and Personnel Policy. Table 4-1 provides a frequency summary of statements made by category. This summary shows the number of statements made and where they were placed in each category. Note some statements were made that created areas that were not included in the original definition of a particular category. However, these statements cannot be ignored since an objective of this research is to identify problems and describe the holistic environment within SAC aircraft maintenance. The first number in Table 4-1 represents the number of statements made, while the second number shows the number of maintenance personnel who made the statements.

Table 4-1 also reveals the percentage of negative, positive, and uncommitted statements made per category and area. As can be seen from the total number of statements made in any given category and area, a number of statements show that some maintenance personnel are generally satisfied with present conditions. However, in

TABLE 4-1

NUMBER OF STATEMENTS MADE PER CATEGORY/AREA

METHODS SUPPORT	Number of Statements Per Area	Number of Maintenance Personnel Who Made Statements Per Area	Negative Statements (%)	Positive Statements (%)	Uncommitted Statements (%)
Technical Orders	31	31	87	13	0
Troubleshooting Procedures	7	7	100	0	0
Repair/Replacement/Procedures	6	6	100	0	0
Wiring Diagrams/Schematics	4	4	100	0	0
Inspection Work Cards	5	5	100	0	0
Forms	25	19	100	0	0
Suggestion Program/AFTO 22	11	10	100	0	0
Computer Management Aids	26	19	100	0	0
Job Scheduling	43	35	98	0	2
Local Work Rules (Unwritten)	26	23	96	4	0
Regulations	36	29	97	3	0
Tool Management Procedures	9	9	89	11	0
Supply Procedures	62	42	98	2	0

Total Number of Statements = 291
Total Percentage of Negative = 97%
Total Percentage of Positive = 3%
Total Percentage of Uncommitted = 0%

TABLE 4-1--Continued

WORK ENVIRONMENT	Number of Statements Per Area	Number of Maintenance Personnel Who Made Statements Per Area	Negative Statements (%)	Positive Statements (%)	Uncommitted Statements (%)
Physical (Cold/Heat/Noise/ Light)	195	175	96	4	0
Psychological (General)	2	1	100	0	0
Supervisory Style (NCOs)	160	108	91	5	5
Supervisory Style (Officers)	24	22	100	0	0
Supervisory Style (Sqd Commanders)	48	38	56	44	0
Supervisory Style (DCM)	128	79	92	6	2
Supervisory Style (General)	38	28	80	8	12
Work Pressure (General)	30	24	70	15	15
Work Pressure Created by (Flying)	64	49	91	3	6
Work Pressure Created by (Perfection)	10	8	100	0	0
Work Pressure Created by (Deadlines)	30	26	90	0	10
Work Pressure Created by (Exercises)	29	26	97	0	3
Work Pressure Created by (TDY)	14	14	100	0	0
Work Pressure Created by (Workdays/Shifts)	108	83	88	2	10

TABLE 4-1--Continued

WORK ENVIRONMENT--Continued	Number of Statements Per Area	Number of Maintenance Personnel Who Made Statements Per Area	Negative Statements (%)	Positive Statements (%)	Uncommitted Statements (%)
Work Pressure Created by (Inspections)	76	60	91	1	8
Work Distractions (General)	9	9	100	0	0
Work Distractions Caused by Details	26	25	92	8	0
Work Distractions Caused by Temporary Duties	11	10	100	0	0
Work Distractions Caused by Extra Duties	25	25	96	4	0
Work Distractions Caused by Training	19	18	100	0	0
Work Distractions Caused by Appointments	10	10	100	0	0
Work Distractions Caused by Administrative Paperwork	66	48	100	0	0
Work Distractions Caused by Task Interruptions	8	8	100	0	0
Organizational	19	16	89	0	11
Crew Chief System	24	19	92	0	8
Job Control	52	40	100	0	0
Verbal Communication	22	19	93	4	3

TABLE 4-1--Continued

WORK ENVIRONMENT--Continued	Number of Statements Per Area	Number of Maintenance Personnel Who Made Statements Per Area	Negative Statements (%)	Positive Statements (%)	Uncommitted Statements (%)
Quality Control	20	16	95	5	0
Span of Control	6	2	67	0	33
Unity of Direction/Command	11	11	100	0	0
Job Structure (General)	7	5	100	0	0
AFSCs	8	8	100	0	0
Duties within AFSCs	47	38	96	4	0
Unpleasant Duties	10	10	90	10	0
Unwanted Supervisory Role	18	18	89	11	0
Fiscal Management	36	29	89	8	3
Manpower Availability	60	47	97	0	3
Technician Availability	202	137	98	1	1
Supervisor Availability	64	55	94	0	6
Officer Availability	20	19	100	0	0
Safety (Physical, Procedural)	31	28	90	10	0

Total Number of Statements = 1787
Total Percentage of Negative = 93%
Total Percentage of Positive = 4%
Total Percentage of Uncommitted = 3%

TABLE 4-1--Continued

EQUIPMENT SUPPORT	Number of Statements Per Area	Number of Maintenance Personnel Who Made Statements Per Area	Negative Statements (%)	Positive Statements (%)	Uncommitted Statements (%)
Hand Tools	26	26	85	15	0
Test Equipment	20	19	90	10	0
Aerospace Ground Equipment	31	28	81	6	13
Automatic Test Equipment	7	7	100	0	0
Special Tools	10	10	80	9	1
Protective Clothing	8	8	86	14	0
Warm Clothing/Heaters	13	11	87	13	0
Weapon Systems (Prime Equipment/ Subsystems/Support Systems/ Age/Obsolescence/Design for Maintainability/Ease of Troubleshooting/Ease of Replacement)	141	124	93	2	5
Spare Parts (Availability/ Serviceability/Procurement/ Reliability/Cannibalization/ WRS Kit/Bench Stock)	306	258	90	8	2

Total Number of Statements = 568
Total Percentage of Negative = 89%
Total Percentage of Positive = 7%
Total Percentage of Uncommitted = 4%

TABLE 4-1--Continued

PERSONNEL POLICY	Number of Statements Per Area	Number of Maintenance Personnel Who Made Statements Per Area	Negative Statements (%)	Positive Statements (%)	Uncommitted Statements (%)
Selection into the AF	32	30	84	8	8
Promotion (General)	20	19	80	20	0
Criteria/APRs Used for Promotion	52	45	79	23	8
Promotion Frequency	9	8	100	0	0
WAPS	27	27	85	15	0
"Up-or-Out" Policy	6	6	67	33	0
Career Path Availability	23	20	78	14	8
Below-the-Zone Promotion	11	10	100	0	0
Promotion by Local Authority	5	5	60	35	5
Assignment to Primary Job	148	101	89	5	6
Retention	236	164	96	2	2
Transfer (PCS)	15	15	80	13	7
Frequency of Transfer	22	21	82	9	9
Location of Transfer	53	47	79	21	0
Involuntary Transfer	26	24	92	0	8
Duration of Stay in a Locale	35	32	80	20	0
Transfer of Spouse	4	4	100	0	0

TABLE 4-1--Continued

PERSONNEL POLICY--Continued	Number of Statements Per Area	Number of Maintenance Personnel Who Made Statements Per Area	Negative Statements (%)	Positive Statements (%)	Uncommitted Statements (%)
Pay (General)	92	75	98	0	2
Basic Pay and Effects	62	54	81	15	4
Food Stamps	7	7	100	0	0
Working Spouse	9	9	100	0	0
"Moonlighting"	13	11	100	0	0
BAS/BAQ	27	23	89	11	0
Incentive Pay	30	26	90	10	0
Benefits (General)	38	33	84	8	8
CHAMPUS	32	29	88	6	6
Tuition Assistance	4	4	75	25	0
Reimbursement of PCS Expenses	7	7	100	0	0
Housing Referral/Sponsor Program	1	1	100	0	0
BX and Commissary	40	39	80	15	5
Retirement Pension and Other Benefits	10	10	80	20	0
Overseas COLA	5	5	100	0	0
Leave	2	2	100	0	0

TABLE 4-1--Continued

PERSONNEL POLICY--Continued	Number of Statements Per Area	Number of Maintenance Personnel Who Made Statements Per Area	Negative Statements (%)	Positive Statements (%)	Uncommitted Statements (%)
Enlistment/Reenlistment Incentives	29	26	66	20	14
Reenlistment Bonus/Leave Buy-Back	42	42	79	14	16
Guaranteed Training	1	1	100	0	0
Base of Preference	36	35	78	12	10
VEAP/GI Bill	30	30	83	17	0
Recruiting/Indoctrination	50	47	80	20	0
Involuntary Separation	15	13	100	0	0
Draft vs. Voluntary Force	13	13	100	0	0
Weight Program	10	10	90	10	0
AFR 35-10	47	42	72	24	4

Total Number of Statements = 1376
Total Percentage of Negative = 87%
Total Percentage of Positive = 10%
Total Percentage of Uncommitted = 3%

TABLE 4-1--Continued

MOTIVATION/MORALE	Number of Statements Per Area	Number of Maintenance Personnel Who Made Statements Per Area	Negative Statements (%)	Positive Statements (%)	Uncommitted Statements (%)
Job-Task Satisfaction	72	64	62	35	3
Career Field Satisfaction	94	65	79	15	6
Job Status/Visibility	57	45	82	11	7
Desire to do Responsible Work	64	53	83	5	12
Desire to Complete the Job/Task	31	27	94	3	3
Job Involvement	97	79	81	4	15
Unit Identification	53	46	67	22	11
Feedback (Evaluation/ Approval/Appreciation/ Reasons for Staying in AF/ Job Security/Broadening Experience/Desire to Learn a Trade)	163	89	95	2	3
Cooperation/Conflict Among People/Units	140	117	89	7	4
Discipline	102	87	89	6	5
Living Conditions	192	179	89	6	5
Recreation	40	39	60	40	0
Respect for Supervisors	36	33	82	13	5

TABLE 4-1--Continued

MOTIVATION/MORALE--Continued	Number of Statements Per Area	Number of Maintenance Personnel Who Made Statements Per Area	Negative Statements (%)	Positive Statements (%)	Uncommitted Statements (%)
Social Interactions	31	28	80	10	0
Educational Opportunities	15	15	93	7	0
Family Life	58	49	90	5	5
Base Services	71	53	83	11	6
Discrimination (Sex/Race/ *Rank*)	134	117	96	3	1

Total Number of Statements = 1450
Total Percentage of Negative = 82%
Total Percentage of Positive = 13%
Total Percentage of Uncommitted = 5%

TABLE 4-1--Continued

TECHNICAL COMPETENCE	Number of Statements Per Area	Number of Maintenance Personnel Who Made Statements Per Area	Negative Statements (%)	Positive Statements (%)	Uncommitted Statements (%)
Perceived Technician Competence	64	55	80	19	1
Perceived Supervisor Competence	70	58	81	12	7
Perceived Officer Competence	54	43	70	27	3
Perceived Civilian Competence	4	4	75	25	0
Male vs. Female Competence	61	44	70	18	12
Education/Intelligence	15	14	93	0	7
Maintenance Training (General)	40	34	75	15	10
Maintenance Tech Training School	97	84	82	13	5
On-the-Job Training	97	72	85	10	5
Field Training (Recurring)	46	43	71	26	3
Management/PME	35	35	60	23	17
Basic Training	7	7	100	0	0

TABLE 4-1--Continued

TECHNICAL COMPETENCE--Continued	Number of Statements Per Area	Number of Maintenance Personnel Who Made Statements Per Area	Negative Statements (%)	Positive Statements (%)	Uncommitted Statements (%)
Ancillary/Annual/Safety Training	32	24	94	3	3
Training Received from Officers	24	18	79	16	5
Human Relations Training	6	5	66	33	1
Proficiency/Advanced Training	9	9	100	0	0
Maintenance Personnel Experience	128	92	87	6	7

Total Number of Statements = 789
Total Percentage of Negative = 80%
Total Percentage of Positive = 13%
Total Percentage of Uncommitted = 7%

all categories and areas, an overwhelming majority of statements indicated that problems existed. Particular problem areas and their associated numbers and percentages may be seen in Table 4-1.

Within the overall scheme of the research, the six categories can be ranked by the total percentage of negative statements made per category. This way the categories can be ranked in order in accordance with the highest percentage of negative statements generated. For example, the category of Methods Support was ranked first because 97 percent of the statements generated were negative. That is 97 percent of the statements made in this category revealed that a problem existed in the category of Methods Support. Specific problem areas ranged over the areas listed within the category as shown in Table 4-1.

The second highest ranked category was Work Environment. Ninety-three percent of all the statements made in this category revealed that problems existed. As can be seen in Table 4-1, problems were indicated to exist in forty-one different areas. Even though this category generated the most interest in total number of statements made, it ranked second in total percentage of negative statements made. This may be because of the large number of areas within the category of Work Environment.

The third highest ranked category was Equipment Support. This category generated 89 percent negative

statements. Again, specific areas are shown in Table 4-1 that reveal the problem areas. The remaining categories are ranked as follows with their respective percentages of negative statements: Personnel Policy ranked fourth with 87 percent negative statements, Motivation/Morale ranked fifth with 82 percent negative comments, and Technical Competence ranked sixth with 80 percent negative statements. The ranking order and their total percentages of negative statements is summarized in Table 4-2. This rank-order does not necessarily mean that one particular category is more important than another. It merely shows that a higher percentage of negative statements was generated about a given category. It must be remembered that all statements generated in this research reveal perceptions of the problems that exist in SAC aircraft maintenance from perspective of its personnel.

Of particular importance were the areas within each of the categories. The areas were the key to understanding and identifying problems in the SAC aircraft maintenance environment. Each category of the scheme will be discussed as it appeared in the ranking. In the highest ranked category, Methods Support, an interesting development occurred. Even though this category ranked the highest in terms of percentage of negative statements made, it ranked last in terms of total number of statements made. Secondly, this category had one of the lowest

TABLE 4-2

RANK ORDER OF CATEGORIES

Category	Rank	Total Number of Statements	Total Percentage of Negative Statements
Methods Support	1	291	97
Work Environment	2	1787	93
Equipment Support	3	568	89
Personnel Policy	4	1376	87
Motivation/Morale	5	1450	82
Technical Competence	6	789	80

number of areas within a category--thirteen. What is most revealing, however, about this category is that the majority of areas included only negative statements. For example, eight of the thirteen areas in this category generated only negative statements. That is, only problems were perceived to exist in these areas. These areas included the following: troubleshooting procedures, repair/replacement procedures, wiring diagrams/schematics, inspection work cards, forms, suggestion program/AFTO 22, computer management aids, and job scheduling. Even though some of the areas cannot be controlled by maintenance personnel at the wing level, some can. For example, the areas of job scheduling, computer management aids, inspection

work cards, troubleshooting procedures, and forms could be managed and controlled more effectively by the wing since supervisors directly manipulate these areas. The specific percentages and number of statements in the category of Methods Support may be seen in Table 4-1.

In the second highest ranked category, Work Environment, forty-one different areas were covered. The specific areas and their numbers and percentages may be seen in Table 4-1. However, the areas may be broken down into five distinct groups: physical, psychological, organizational structure, manpower availability, and safety. A discussion of the physical, psychological, and manpower availability will follow. The areas of organizational structure and safety are self-explanatory from Table 4-1.

Physical aspects in the Work Environment category included severe weather elements along with lighting, noise, and space considerations of maintenance facilities. As would be expected, many negative statements generated by maintenance personnel concerned the harsh winter environments of Maine and South Dakota where Loring and Ellsworth Air Force Bases are located, respectively. This is of no real surprise since many maintenance functions on SAC aircraft must be performed outdoors. However, this could adversely affect other perceptions held by maintenance personnel toward additional aspects of the job. For example, it is entirely possible that shoveling snow in

subzero temperatures at home prior to work could cause a maintenance technician's attitude toward career field satisfaction to be negative.

The psychological group revealed a wide breakout of areas. One specific area within this group concerned the following: supervisory styles/techniques of non-commissioned officers (NCOs), maintenance officers, squadron commanders, the DCM, and higher management. The largest quantity of negative statements generated in the psychological group concerned the supervisory style/ techniques of NCOs. A total of 160 statements was generated in this, of which 91 percent of the statements indicated problems existed in this area. This was expected since more technicians were interviewed than any other group of maintenance personnel. Since technicians would have more interaction with NCOs than officers and the DCM, more negative statements should be generated about their supervisory style. Many negative statements generated in this area concerned the inconsistencies displayed by supervisors. For example, one technician complained that his supervisor had a "Dr. Jeckel-Mr. Hyde" personality. The technician stated that this type of supervisor personality was going to influence his decisions to stay in the Air Force. Another common negative statement made by maintenance personnel concerned the unwillingness of maintenance officers and DCMs to learn about

aircraft maintenance problems. Their concern was that maintenance officers tended to be more concerned about their paperwork rather than actual maintenance problems. Overall, 92 percent of the 128 statements made in this area were negative.

Another large problem within the psychological group was work pressures and distractions created by a variety of reasons. Work pressures within SAC aircraft maintenance was seen by maintenance personnel to be caused by the following: flying schedules, requirements for perfection by superiors, deadlines, mobility exercises, temporary duty elsewhere, length of workdays/shifts, and inspections. Similarly, work distractions were viewed as mainly a hindrance to maintenance personnel accomplishing their job. Such distractions included the following: outside details; temporary duties; extra duties; training, meetings; dental, medical, and record check appointments; and administrative paperwork.

In the area of manpower availability, the biggest concern surrounded the availability of competent and reliable technicians and supervisors. Of special note is the number of negative statements generated about the availability of technicians. One maintenance supervisor expressed the following:

> We used to have 32 people in pneudraulics. Now we have 14 or 15 and only 4 are fully qualified.

> Most of the others are not mechanically inclined, and you have to use the qualified people to watch and help the others. We had to go to 12 hour shifts for awhile because we didn't have enough people.

Another complaint concerned the experience level and availability of supervisors. A typical statement in this area is summarized by the following:

> Our level of supervision is rising now, but it was very bad last year. We had Senior Airmen taking the place of Staff Sergeants and Technical Sergeants. At first it was pretty bad, but they came through well. It was pretty scary to rely on them, but I found that our fears were unfounded and they did a good job for the most part.

This area of technician availability was particularly noteworthy since 202 statements were generated by 137 maintenance personnel. This area was the third most discussed area in this research. It is an area that should be further explored and be of continuing special concern to the Air Force because 198 negative statements of the total 202 revealed a problem existed in this area. This resulted in 98 percent of the statements indicating a problem exists in this area.

The third highest ranking category was Equipment Support. In this category two particularly noteworthy exceptions in terms of total statements and percentage of negative statements made will be discussed. The two areas were weapon systems and spare parts. These areas generated 141 and 306 statements each, of which 131 and 274 were negative, respectively. As can be seen from Table 4-1,

the spare parts had more statements made about it than any other area in this research (306 statements). Ninety percent of these statements indicated that problems existed in this area. The spare parts area covered the following: availability of spare parts, serviceability of parts, reliability of parts, cannibalization of parts, and other related areas.

Mainly, the area of spare parts generated statements about the B-52 and KC-135 aircraft being too old and very difficult to maintain. The age of the two aircraft has caused problems in being able to find reliable and serviceable parts. As long as the B-52 and KC-135 are maintained in SAC's inventory, the availability, reliability, and serviceability of parts will continue to be a big issue among maintenance personnel. Another problem noted by maintenance personnel is obtaining adequate support from supply squadrons in obtaining parts. Since the B-52 is an older aircraft, it is very difficult to obtain older parts. Therefore, all the SAC units involved in this research must cannibalize parts from other aircraft. This means they take parts from one aircraft that is not flying for a given week to maintain another aircraft scheduled for a mission.

A sample of statements concerning the B-52 and KC-135 aircraft along with the issue of spare parts follows:

There aren't enough parts. You have to cannibalize (known as cann) and that's extra work. Often supply will say a part is not listed or does not convert to a stock number. We have to fight with them and write letters and show them the part number in the T.O.

We have too few parts, so we have to cann. That's a real motivation killer because it takes so much time.

It would help if we had a newer airplane. The planes are often broke when they come back from a flight and we have to work hard to get them back in the air the next day.

Because the weapon systems are too old we can't get parts. They are out of manufacturing or its too expensive to tool up for parts. Because the parts are scarce we have to cann so we can fly. Canns double the effort and require twice the manpower. That hurts the ability to do the job without overtime, causing morale problems, causing people to get out.

Additional areas in the category of Equipment Support may be seen in Table 4-1. These areas cover hand tools, test equipment, aerospace equipment, clothing and special tools. As with all the other areas, the majority of statements made indicated problems existed in the above-mentioned areas.

The fourth-ranking category in terms of total percentage of negative statements made was Personnel Policy. This category revealed a wide breakout of different areas. In all, forty-three different areas were grouped within this category. Generally, as can be seen from Table 4-1, there was an even distribution of statements and their respective percentages. However, there are two notable exceptions. One exception involved perceptions concerning the area of retention. Retention was singularly the

largest area drawing the most attention in this category. Two hundred thirty-six statements were made, of which 226 indicated problems existed in this area. Of the 96 percent negative statements in the area of retention, a wide variation in type of retention statements was made.

For example, negative statements about retention ranged from pay and incentives to lack of recognition in influencing maintenance personnel about their future Air Force and aircraft maintenance plans. A sample of retention statements follows:

> We need more qualified people. We are very undermanned in the supervisory ranks. We get lots of 3-levels, but they are generally getting out after one-term. I have 4 Senior Airmen who I depend on and they have said they are getting out soon.

In this statement no specific reason was given for why the four airmen wanted to leave the Air Force. However, this example shows that maintenance supervisors must be concerned with not only maintaining aircraft, but with losing their best people for a variety of reasons.

> We are really down in manpower. We're getting a lot of new people in now. But a lot are leaving too. Five people in our shop are getting out. I think I will get out, too. I can make a lot more if I get a job and join the Air National Guard, too. If the draft comes along, the Air Force won't lack for men.

This statement points out two important points that are common to many retention statements. First of all, many aircraft maintenance personnel were concerned about the amount of pay they were receiving for their job. Many

enlisted maintenance personnel could not make ends meet because of a low salary and relied on a second job to supplement their income. This issue did greatly influence retention of qualified aircraft maintenance personnel. Future research may indicate that a lack of pay forces Air Force members to leave the Air Force.

Secondly, this statement is an example of how many aircraft personnel believed their job was important. That is, maintaining aircraft. In the sample above, not only was this individual going to leave the Air Force because of his salary, but he wanted to join the Air National Guard to presumably continue maintaining aircraft. This is a unique irony.

> A lot of people are getting out of munitions. Some feel the weapons are immoral. Some say there should be more knowledge of what the radiation hazards might be. A lot of people stay in for the reenlistment bonus. One of my friends will stay in and three who will probably get out.

This statement does not give any specific reason why the three airmen are leaving the Air Force. But this statement does reveal an important item that could help munitions personnel stay in their career field. An explanation should be given concerning the effects of radiation and the nuclear capability of SAC's B-52s. SAC should present, at a minimum, a holistic viewpoint as to how munitions and aircraft maintenance is a key element in deterring nuclear aggression by the Soviet Union.

> Sometimes they put up people for Airman of the Month or Quarter to influence them to stay in, but it doesn't work. They do it after the guy has made his decision and has made plans for civilian life. If the guy deserved it, he should have gotten it before his fourth year.

This statement indicates proper recognition of aircraft maintenance personnel is important for rewarding an individual for his job. The recognition could mean a verbal response or a certificate of recognition, such as Airman of the Month or Quarter.

Finally, many negative statements were generated about the lack of incentives to keep aircraft maintenance personnel in SAC. Even though pay was of concern, the erosion of incentives offered to Air Force personnel in recent years was expressed as an important issue in this research. A statement by an Assistant Flight Chief assigned to Loring AFB, Maine, is typical of retention statements concerning incentives:

> We are losing our skilled people because there are no incentives to stay. The difference between a Tech Sergeant with 12 years experience and an Airman basic is about $400 a month.

The second important area within the category of Personnel Policy deserving special attention is assignment to the primary job. One hundred forty-eight statements concerning assignment to the primary job were made by 101 maintenance personnel at the three SAC bases. Of the 148 total statements, 89 percent of the statements made expressed the existence of problems in this area. Many

statements concerning this area revealed that maintenance personnel are rotated throughout the maintenance complex and do not stay in one job for any extended period of time. For example,

> The young maintenance officer only spends about a year on the flight line. They should have a controlled tour, that would at least keep them on the line for two years. It takes a year just to get them up to speed, so they can work by themselves.

> I've been moved around a lot from one job to another. A guy should be told frankly why he is moved when he is moved.

Similarly, aircraft maintenance personnel who were transferred from other major commands to SAC questioned the move because they felt that by being assigned solely to fighters in Tactical Air Command (TAC) versus three years in TAC and three years in SAC working on bombers does not help their maintenance career intentions. They preferred being assigned only to fighter aircraft maintenance, or to bomber and tanker aircraft maintenance, when they entered the aircraft maintenance career field.

> If you want to do more with less, then keep the experienced people on the same kind of aircraft. Don't send a man who's been in TAC all of his life to SAC. If we could keep SAC people in SAC, and TAC people in TAC, and MAC people in MAC, then maybe we could do more with less. However, you can only do so much with so much less, until it catches up with you.

The areas of retention and assignment to a primary job were the two largest areas within the category of Personnel Policy. It must be mentioned that forty-one other areas were covered within this area. The specific

areas may be seen in Table 4-1. Personnel Policy is an area of concern and should be examined critically by Air Force managers.

The fifth ranked category, in terms of percentage of negative statements made, was Motivation/Morale. This category generated 1450 statements from the three SAC bases of which 82 percent of the statements were negative. The specific areas, along with their total number of statements and percentages, may be seen in Table 4-1. Generally, there is an even distribution of statements and their percentages that cover twenty-one areas. Of note, however, are the following areas: feedback, cooperation and conflict among individuals, living conditions, and discrimination.

In the area of feedback, 103 statements were made of which 95 percent stated a problem existed in this area. The feedback area included evaluation of the job, approval by others of the job done, and appreciation for doing the job. Statements concerned with receiving recognition and instilling unit pride were common. Many maintenance personnel stated what problems existed in the feedback area and offered suggestions in gaining unit recognition and pride:

> We used to have a lot of pride in our unit, but we have less now. I think we need more publicity to bring back pride. The Maintenance Man of the Month should have his picture in the paper. The Base Airman of the Month and Base NCO of the Month should have a car to use and a parking spot at the NCO Club, the BX, and the Commissary. Our guy gets a certificate, a three-day pass, and a tie-tack.

Another common statement expressed the need for recognition in passing inspections, both local and higher headquarters.

> We've been doing so much work. And there's no appreciation at the end. So there's no motivation to do it over and over. It used to be that QC inspected our inspections and if we did a good job we got a certificate. Now they don't do that anymore. As little as it is, it's important.

> The Senior NCOs in the bomb branch have chipped in to give plaques to Crew Chief of the Month, Assistant Crew Chief of the Month, and Maintenance Team Member of the Month. They are voted on by peers. Our people have heard how bad they are, after all their inspections. Now they hear how good they are from their supervisors.

The area of cooperation and conflict among fellow workers in the maintenance unit totaled 140 statements made by 117 individuals. One hundred seventeen or 87 percent of the total statements made in this area indicated there was a problem. The form of cooperation and conflict took two directions: cooperation and conflict among workers, and cooperation and conflict between squadrons. Sample statements will describe the cooperation and conflict between workers and squadrons.

> Most of our problems stem from lack of, or delay of, communications between supply and the squadron. We spend a lot of time explaining why we need a part and why we have to have it. Supply should be available to assist us in any way. We have a lot of lag time getting our equipment from PMEL because they can't get the parts they need to keep their test equipment on line.

This statement serves as an example of conflict between a supply squadron and an avionics maintenance squadron. Even though there were many negative statements concerning

conflict between coworkers in any maintenance squadron, a number of statements were made about the need for better cooperation between operations flight crews and aircraft maintenance teams.

> Flight crews need to know what the crew chiefs go through. I would like to see the crew chiefs and the crews matched up. Flight crews should go through some of the pre-flights with the crew chiefs. Crew chiefs and flight crews are treated different when they go TDY together. The crew chiefs draw hazardous duty pay while the crews draw flight pay. The crews stay at the BOQ and the crew chief stays somewhere else.

In the area of living conditions, 192 statements were made by 179 maintenance personnel. As with the previous area, 89 percent of statements made in this area expressed the presence of problems. This area included the following: off-base housing, on-base housing, and food services. Some of the more common statements included the following: substandard living conditions, forfeiting BAQ for substandard housing, cramped quarters in barracks, and lack of suitable off-base housing that maintenance personnel could afford. A sample of housing statements follows:

> Base housing is terrible. The units are very small and crowded together. We have no lawn space. We can't enjoy the area outside of the living quarters. Suitable off-base housing isn't available. That which is usable is too expensive.

This statement is an example of one technician's perception that his on-base housing is too small, yet he cannot afford what he calls "suitable" housing off-base.

> Base housing is pretty shabby. They need to put some money into it. The walls are too thin and don't have enough insulation. The garages are so bad that you can't keep your car in them.
>
> Wiring in base housing is substandard. There are no 3-way plugs for grounding and one house already burned down because of wiring. The Base Civil Engineers do a good job of fixing problems, but they need to replace the wiring.

Both of these statements are examples of perceived substandard housing at two SAC bases.

A number of statements were made about the living conditions of maintenance personnel who live in the barracks.

> Our barracks has 400 occupants and a parking lot built for about 10 cars. We need to put some money into quality of life factors for our single airmen.
>
> The barracks here are in bad condition. If they were better, it would help morale, but they're working on them very slowly. There's an open sewer on base that breeds insects. They should either cover the sewer or get us screens to cover the windows.

The final major area within the category of Motivation/Morale that is noteworthy is discrimination. This particular area generated 134 statements made by 117 maintenance personnel. This percentage of negative statements made in this area was 96 percent of the total number of statements. The discrimination area covered topics like sex, race, marital status, civilian-military, and rank. A sample of discrimination statements follows:

> What does a maintenance man have to look forward to? I work 5.5 days a week plus recall, for the same pay. Why should I stay in maintenance? If maintenance is the backbone of the Air Force, why isn't there some incentive to keep it strong instead of driving people away?

This particular technician was concerned with receiving commensurate pay for the amount of work done. This statement was noted among many maintenance technicians. They felt that they should receive more pay for their work since they worked longer and more unusual work hours than personnel assigned to the customer service branch.

> Twice we had women come here pregnant from Tech School. We do X-ray in NDI, so right off the bat we had to loan them to another shop. We have to work short-handed until they decide when they're going to get out of the Air Force. You show a body on the board, but as far as getting the work done, you don't. It affects the people who have to pick up the slack.

This statement shows the concern of allowing pregnant women into certain career fields within the Air Force. The men who must pick up the extra work because a pregnant woman cannot work her assigned task feel discriminated against.

Finally, the last statement concerns the views of one technician about minorities. Unfortunately, there were a number of negative statements made about the perceived lack of equality in disciplining all races. Many felt that blacks were given better promotion opportunities when compared to whites.

> Minorities have it made. Last time around there were 28 blacks up for below-the-zone, and 26 of them made it. I worked for a woman who was a crew chief. Me and my buddy did all the work, while she spent most of her time sucking up to flight crews and supervisors. Women just don't have mechanical inclination, and shouldn't be in maintenance. I've never seen anyone pick on a black. They're afraid they'll get hollered at.

The final category, which ranked sixth, was Technical Competence. In all, seventeen different areas were covered that contained 789 statements. Of the 789 statements made, 80 percent expressed that a problem existed in this category. The areas included perceived competence of technicians, supervisors, officers, and civilians; maintenance personnel experience and training; and various other Air Force related training programs. As with the previous categories, the statements were generally evenly distributed between all the areas in Table 4-1. However, there was one noted exception. That exception is concerned with the area of maintenance personnel experience. One hundred twenty-eight statements were recorded of which 87 percent revealed that problems existed in the area. Most of the statements in this area were concerned with the lack of experienced maintenance personnel and how this affected the work output of a branch or shop. The statements made were similar to the availability of manpower statements from the Work Environment category. The shortage of manpower and lack of experience in many aircraft maintenance areas was of major concern to supervisors and maintenance officers. The following are sample statements concerning maintenance personnel experience:

> We lack the skill level to get the work done correctly. We lost our staff and tech mid-level managers to the outside, and are replacing them with airman basics with no experience at all. It's only a matter of time before we are completely out of mid-level managers.

In 1978 they let a lot of people out of the service to go to college. So we lost a lot of mid-level managers. We got down to nothing but training base for 3-levels. Also Senior Airmen had to fill E-6 and E-7 slots. Now we are running most of our shops with low-experience NCOICs.

75% of the troops are in it for the paycheck. The younger troops are a sorry lot. Lazy. I have 2 Sergeants and a civilian who hold the shop together. For the civilian, this work is his career. He has many years of experience. The rest are just here for awhile, so they don't care.

As noted in Table 4-1, all the categories and their assigned areas were identified as being sources of irritants and presented problems to the aircraft maintenance personnel interviewed for this research. We cannot begin to offer solutions to the problems presented in this research. We can only hope that responsible individuals in SAC and in higher management positions will take notice of this list of problems (Table 4-1) and begin to take action.

Summary of Interview Results

An objective of AFHRL was to interview personnel from every level and specialty relevant to SAC aircraft maintenance. A secondary objective was to interview 100 people from three SAC bases--Dyess, Ellsworth, and Loring. A summary of requested positions can be found in Figure 3-1 of Chapter III.

A total of 314 personnel were interviewed at the three SAC bases. Of those interviewed, 301 were males

and 13 were females. Also, 275 were enlisted and 39 were officers. Statistics concerning race revealed the following: white, 281; black, 18; hispanic, 11, oriental, 2; and other, 2. Additionally, all shifts of duty hours were represented: Day (0700-1500), 222; Swing (1500-2300), 79; and Night (2300-0700), 13.

The weapon systems involved in the study were the B-52D, B-52G, B-52H, KC-135, and EC-135. B-52D aircraft are assigned to Dyess AFB, B-52G to Ellsworth AFB, and B-52H to Loring AFB. Figure 4-1 shows the number of personnel associated with each weapon system.

Figure 4-2 reveals the variation of the age of the personnel interviewed. A third of the personnel interviewed were twenty-eight or younger, while only four were fifty or older.

Figure 4-3 gives a summary of military grades associated with the people interviewed. Approximately 60 percent of the personnel were in grades E-1 through E-5 and 30 percent of the personnel were senior non-commissioned officers (E-7 to E-9).

The number of personnel interviewed in a particular Air Force Specialty Code (AFSC) is shown in Figure 4-4. Also, Table 4-3 illustrates the variety of AFSCs sampled at the three SAC bases. Personnel were categorized in accordance with the General Description of each AFSC (the

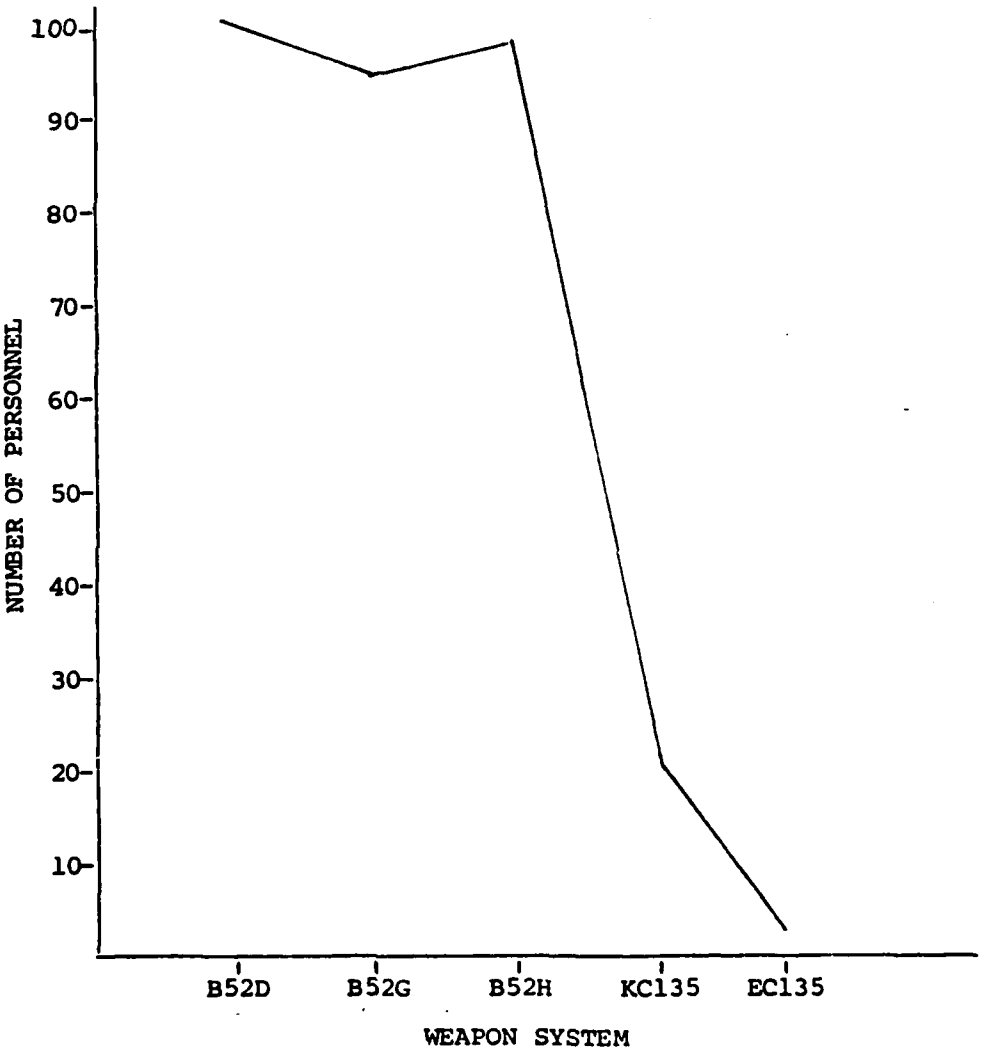

Fig. 4-1. Summary of Personnel by Weapon System

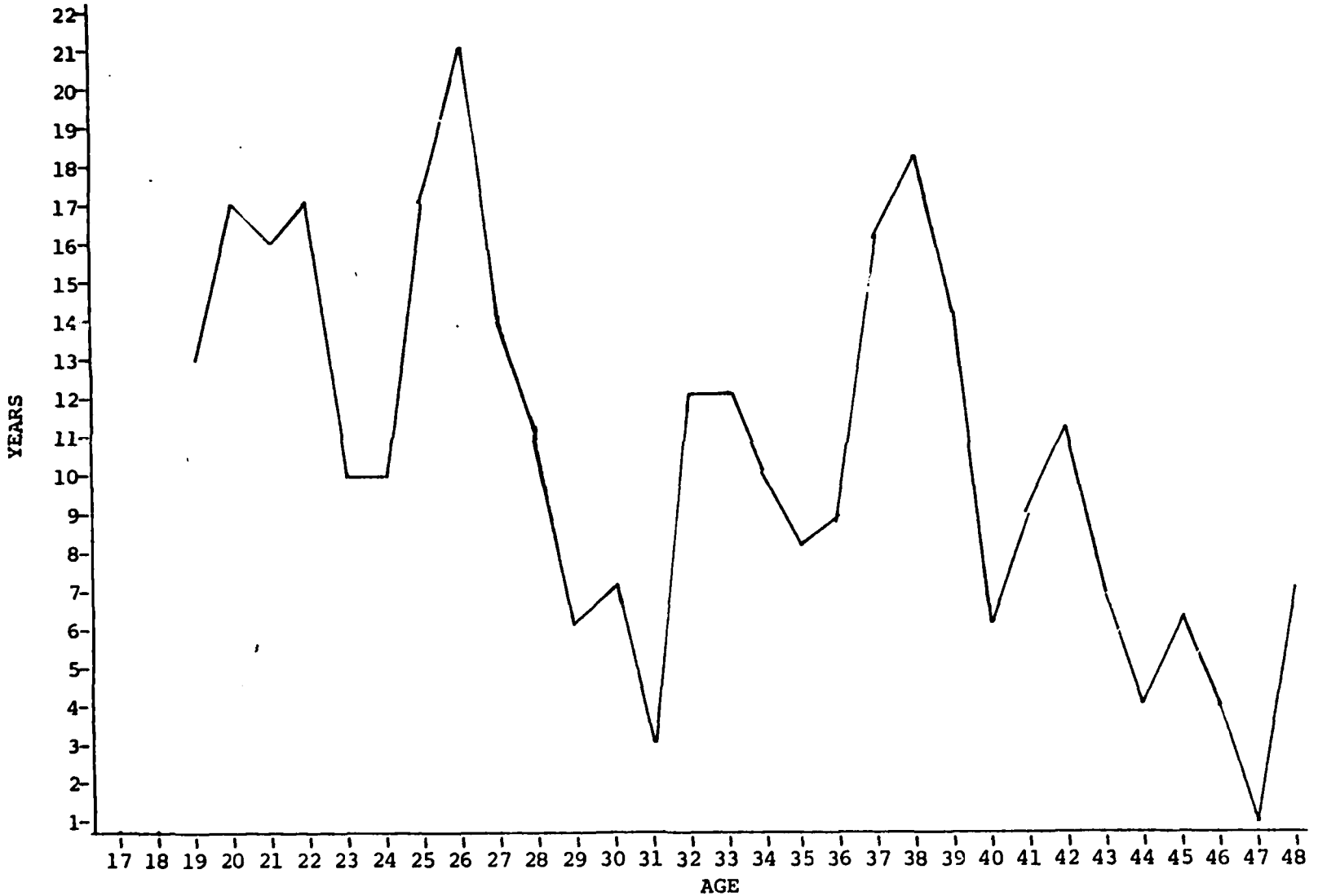

Fig. 4-2. Summary of Ages

AD-A122 815 A QUALITATIVE ANALYSIS OF SAC AIRCRAFT MAINTENANCE(U) 2/2
AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOOL
OF SYSTEMS AND LOGISTICS D P COOK ET AL. SEP 82
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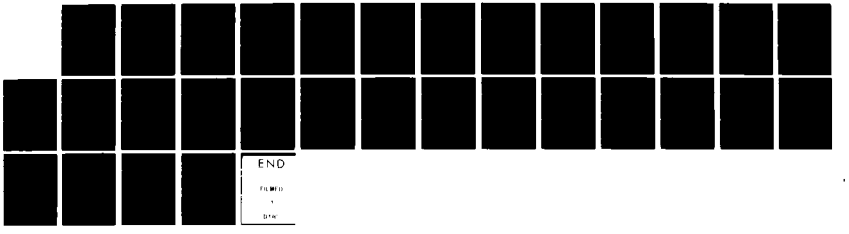

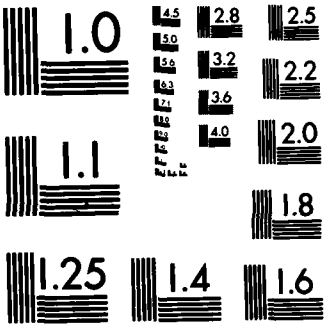

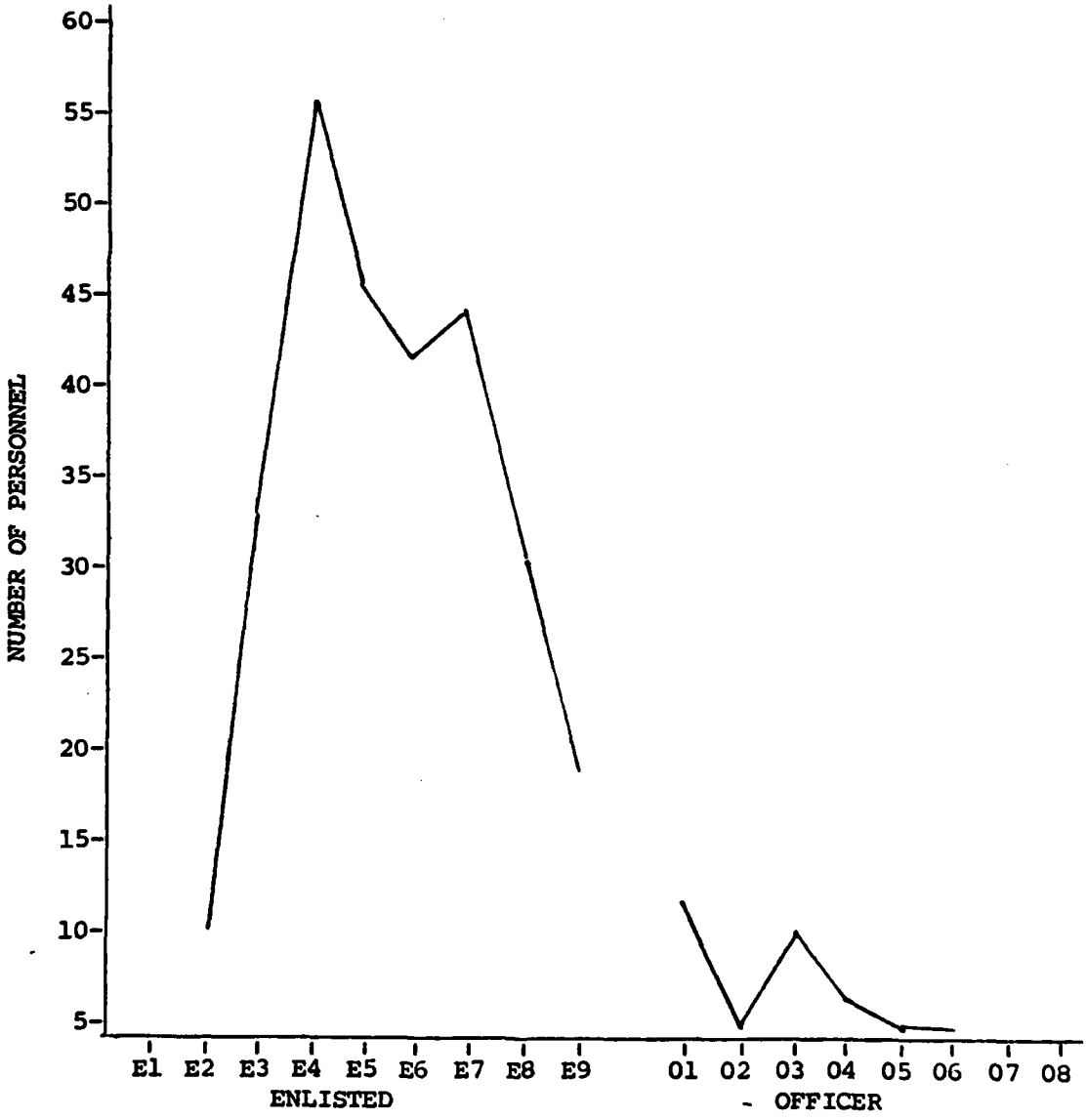

Fig. 4-3. Summary of Military Grades

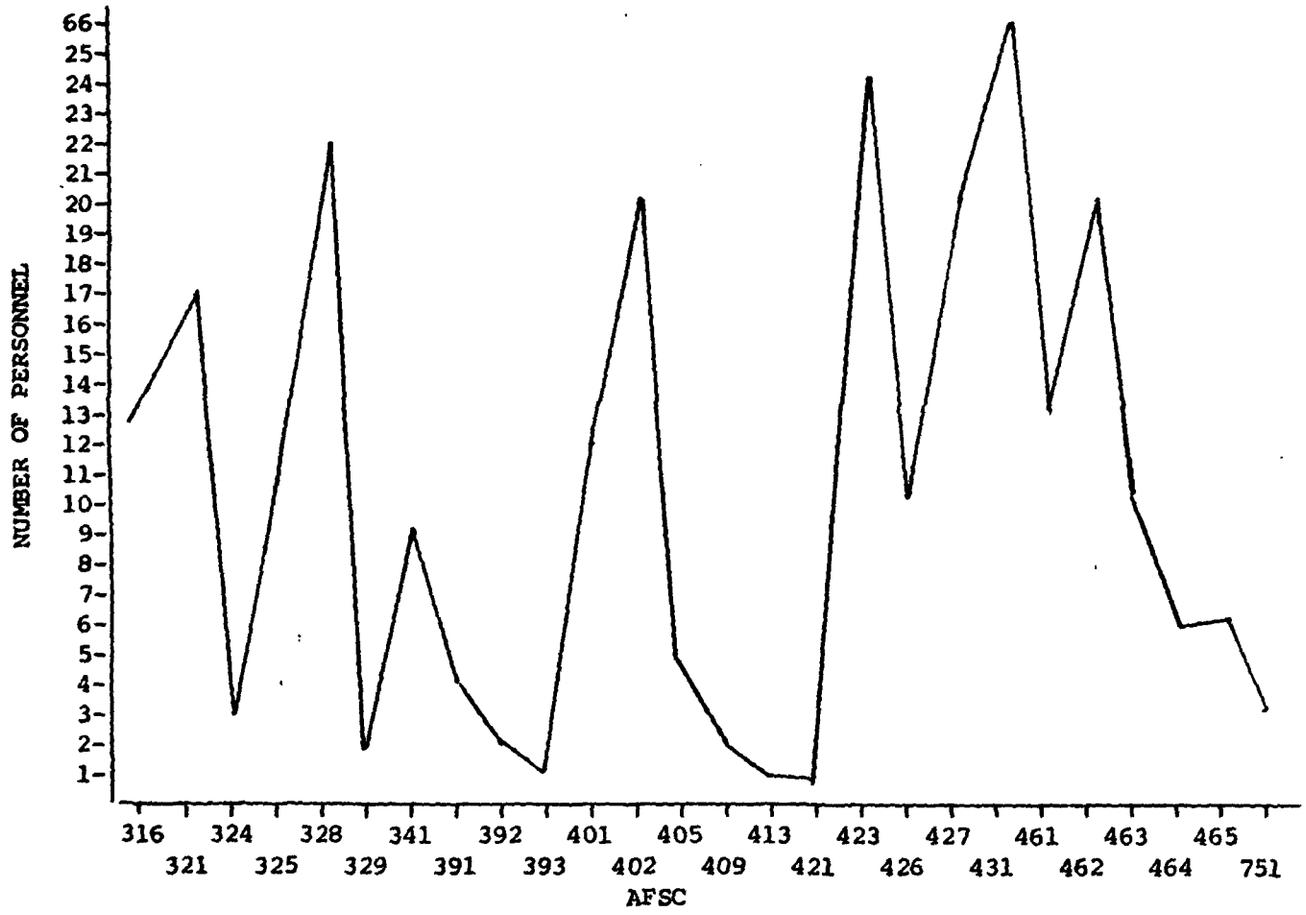

Fig. 4-4. Summary of AFSCs

TABLE 4-3

AIR FORCE SPECIALTY CODE (AFSC) AND GENERAL DESCRIPTION

AFSC	General Description
316XX	Missile Electronic Maintenance Analyst
321XX	Avionics System Analyst
324XX	PMEL Specialist
325XX	Avionics Instrument Systems Analyst
328XX	Avionic Communications-Navigation Analyst
329XX	Avionics Supervisor
341XX	Instrument Trainer Specialist
391XX	Maintenance Analyst Specialist
392XX	Maintenance Supervisor
393XX	Maintenance Manager
401X	Staff Maintenance Officer
402X	Aircraft Maintenance Officer
405X	Munitions Officer
409X	Aerospace Maintenance Director
413XX	Current description not available
421XX	Current description not available
423XX	Aircraft Electric Environment Technician
426XX	Jet Engine/Turbo-Prop Technician
427XX	Machinist, Communications Control, Non-destructive Inspection Specialists
431XX	Aircraft Maintenance Specialists
461XX	Munitions System Specialists
462XX	Aircraft Support Armament Specialists
463XX	Nuclear Weapon Specialist
464XX	EOD
645XX	Supply Systems
751XX	Training Specialists--OJT

first three digits). Skill level and exact specialty within the AFSC are not identified.

Relationships between time in service, time in maintenance, and time in supervision are revealed in Figure 4-5. Forty-six and two tenths percent of all personnel surveyed had less than eight years in the service, while 52.2 percent of all personnel had less than eight years time in maintenance. Additionally, 30 percent of the personnel had more than eight years supervision. Generally, time in service, maintenance, and supervision follows the same curvature. Figure 4-5 also illustrates that as experience increases, number of personnel decreases.

Summary of Data Analysis Results

The data obtained from the AFHRL revealed many problem areas within the six general categories. The analysis of data showed that all the categories and their respective areas were perceived problems by the maintenance personnel. Even though it is difficult to validate that these problems are widespread in the SAC aircraft maintenance environment, it is hoped that these problems will be examined by individuals at the wing, headquarters SAC, and Air Force levels.

It must be remembered that the statements generated by the maintenance personnel are their own perceptions of their work environment. We can only assume

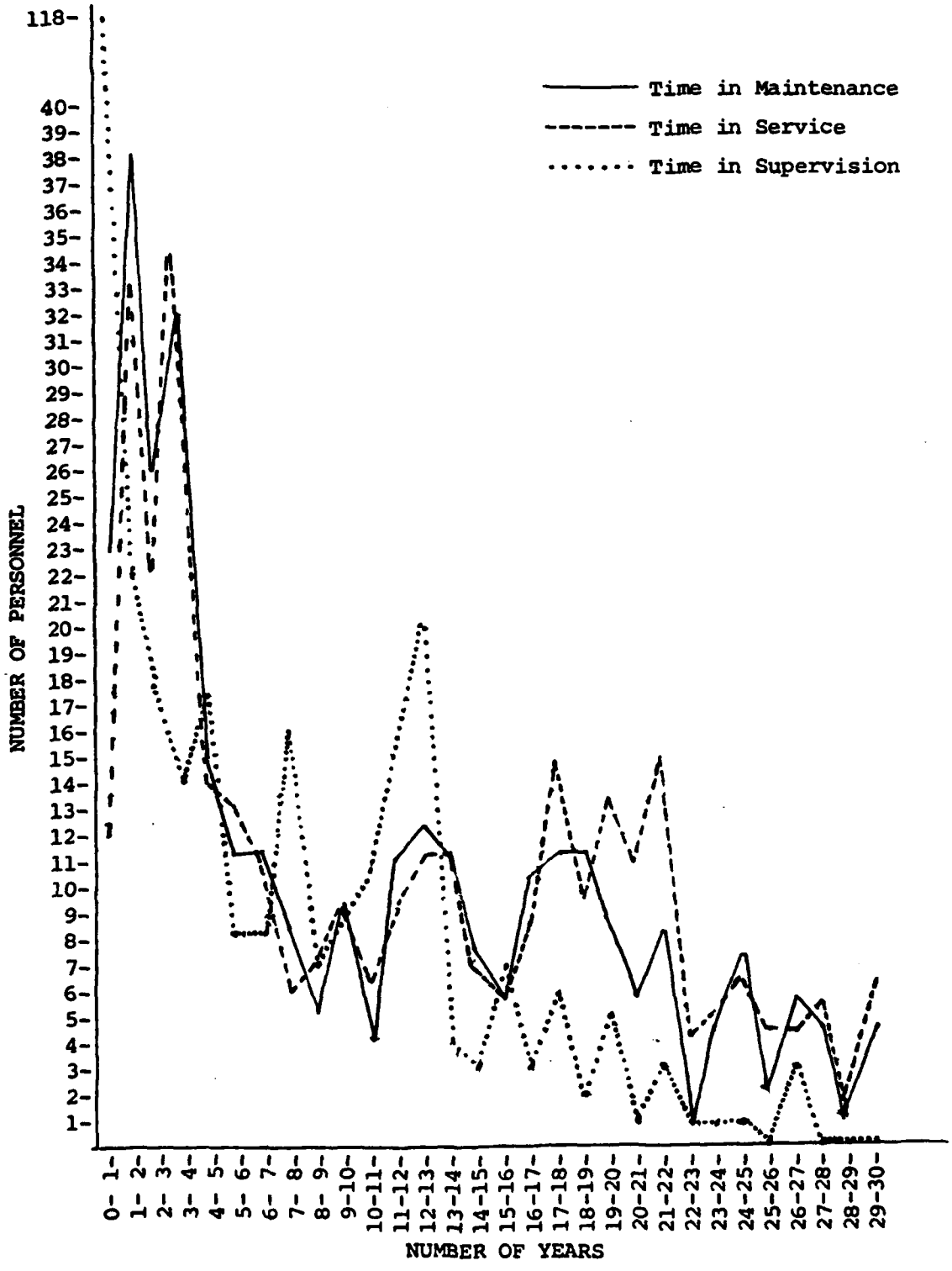

Fig. 4-5. Summary of Time in Service, Maintenance, and Supervision

these statements are honest and true problems from the point of view of the maintenance personnel. If they are true, it would seem that SAC's maintenance managers must seriously investigate and attempt to solve these problems to ensure that quality managers, supervisors, and technicians remain in the aircraft maintenance career field.

CHAPTER V

DISCUSSION, RECOMMENDATION FOR FUTURE STUDY AND SUGGESTED USE OF RESEARCH

Overview

This chapter presents the discussion and recommendations for future research, and several suggestions on how to use the data presented in this research.

Discussion

Most prior studies have examined aircraft maintenance environments with only one area of concern in mind. For example, studies have been accomplished to evaluate task analysis and technical order procedures as one area of aircraft maintenance. This study has viewed SAC's aircraft maintenance environment without identifying a particular area of concern. Instead, this research has attempted to identify problems in aircraft maintenance from the perspective of the personnel who perform, manage, and supervise aircraft maintenance in SAC. This broad, or holistic, approach has shown that the aircraft maintenance can be divided into six categories. Similarly, these categories can be examined from the respective areas that constitute the categories.

This arrangement of the aircraft maintenance environment into categories and areas is convenient for two reasons. First, problems can be easily identified as shown in Table 4-1 of this research. Secondly, a categorization scheme, like the one presented in Table 4-1, allows the aircraft maintenance problems to be placed in an understandable rank order. It was hoped that by placing the six categories into a priority ranking more insight could be gained from the categories.

There were three main objectives in this study:

1. Identify problems in SAC aircraft maintenance units from the perspective of those personnel who perform, manage, and supervise maintenance.

2. Arrange those problems in priority order so that research organizations and SAC commanders would be better able to solve the problems.

3. Classify identified problem areas into an overall scheme that may be easy to understand.

When examining the first objective, the researchers of this study identified problems in SAC aircraft maintenance. As can be seen from Table 4-1, every category, and the associated areas, were overwhelmingly considered to be problems. This is shown as the total percentage of negative statements within a given category and area. The fact that every category and area was seen as a problem to the majority of aircraft maintenance personnel in this

study could be viewed with alarm. However, it must be remembered that the statements used in this study are perceptions of problems from the perspective of 314 aircraft maintenance personnel. Secondly, the researchers of this study have no way of validating the authenticity of statements. Third, we must remember that the interviewers for the AFHRL are outside SAC's chain of command. By this, one must consider that it would be very easy for the maintenance personnel to vent frustration toward the Air Force, SAC, and their career field knowing that no harm would come of it. Admittedly, the interviewers from the AFHRL were hoping that their format for data collection would enable them to collect true and honest perceptions about aircraft maintenance in SAC. Hopefully, this data and the statements are a true and honest representation of each maintenance personnel's perception of aircraft maintenance. If they are, SAC's senior management must do much to solve the problems presented in this research. If they are not, then this research and the work by AFHRL was a waste of time.

Nevertheless, we believe that the problems perceived by the SAC aircraft personnel warrant further consideration and action by Headquarters SAC and Air Force. This data cannot be taken lightly or set aside as frivolous information. We strongly feel that the overwhelming majority of SAC's aircraft maintenance personnel at all

levels believe the problem areas and categories shown in Table 4-1 do exist. Senior Air Force officers and SAC management must research and seek to validate and find solutions to these problems.

The second objective of this research arrayed identified problems in a priority order so that SAC commanders could have an order of urgency for efforts to solve the problems. This objective was met. Table 4-2 shows how the categories were ranked. Each category was ranked in accordance with the total percentage of negative statements within a category. A thorough explanation of this procedure is contained in the section Data Categorization in Chapter III. By prioritizing the categories, we were only suggesting there was a higher total percentage of negative statements in any given category versus all the others. If future researchers wish to examine and attempt to solve problems in SAC's aircraft maintenance environment, we suggest they work with the rank order in Table 4-2.

The third objective of this research was to classify identified problems into an overall scheme that may be easy to understand. We believe this objective was met. The overall scheme that contained identified problems is Table 4-1. This table lists the six categories used to classify all the statements made in this research. Further, the areas within the categories represent specific slots where statements were placed. We strongly feel that this

classification scheme is easy to understand and to use for future problem analysis. As will be demonstrated in a later section of this chapter, the scheme can be easily adapted to be used as a guide for future problem identification in the aircraft maintenance environment.

Recommendation for Future Study

This study attempted to look at the SAC aircraft maintenance environment and try to identify its problems. The categorization scheme presented in Table 4-1 has not only described problems in SAC aircraft maintenance but it has also given an overall description of the maintenance environment. To gain even more insight into SAC aircraft maintenance, the researchers recommend six future studies be done. These future studies would analyze the collected data for each category (six) and begin to offer solutions to the probable causes of the identified problems. To offer solutions, the future studies would have to be done by persons who are extremely knowledgable of the aircraft maintenance environment in SAC.

Suggested Use of the AFHRL Data

The interview data collected by the AFHRL is unique in that it represents the perceptions of the SAC personnel who perform, manage, and supervise maintenance. As such, the data represents relatively current, day-to-day perceptions of problems. It was vital to analyze and

arrange this information for senior Air Force and SAC managers to solve the problems that exist in the SAC aircraft maintenance environment. However, this should not be the end to identifying problems in SAC aircraft maintenance. Aside from the recommended actions, more should be done with this data.

A wide range of areas and categories in this research were identified as problems to the SAC aircraft maintenance personnel interviewed by the AFHRL. We can, in no way, begin to offer solutions to the problems presented in Table 4-1. This was not our job or research intention. We feel it is the responsibility of senior Air Force officers and SAC managers, along with SAC wing commanders, to attempt to solve the problems in Table 4-1. Admittedly, many problems are beyond the control of even those individuals because of Department of Defense, Air Force, and congressional defense budget constraints. However, many problems can be solved. It is our opinion that responsible managers in the Air Force and SAC must closely examine the data presented in Table 4-1 and seriously study it and the more specific AFHRL data.

To help senior managers in SAC and the Air Force to analyze this data, we propose that Table 4-1 be made into a guide. This guide could be arranged, as shown in Figure 5-1, to facilitate the study. Further, we propose that this guide, along with a copy of this thesis, be sent

Technical Competence

Perceived Technician Competence
Perceived Supervisor Competence
Perceived Officer Competence
Perceived Civilian Competence
Male Competence vs. Female Competence
Education/Intelligence
Maintenance Personnel Experience
Maintenance Training (General Area)
Maintenance Technical Training School
On-the-Job Training
Field Training (Recurring)
Management/Professional Military Education
Basic Training
Ancillary/Annual/Safety Training
Training Received from Officers
Human Relations Training
Proficiency/Advanced Training

Motivation/Morale

Job-Task Satisfaction
Career Field Satisfaction
Job Status/Visibility
Desire to Do Responsible Work
Desire to Complete the Task/Job
Job Involvement/Caring/Retiring on Job
Unit Identification/Affiliation/Pride
Respect for Supervisors
Feedback (Evaluation/Approval/Appreciation)
Reasons for Remaining in Air Force (Patriotism/Job Security/Steady Pay/Broadening Experience/Desire to Learn a Trade)
Cooperation/Competition/Conflict Among Individuals/Units
Discipline (Excessive/Insufficient/Consistent)
Living Conditions (Off-base, On-base Housing/Food Services)
Recreation
Social Interactions/Social Environment
Educational Opportunities
Family Life (Effects of TDY, Overtime, PCS)
Base Services (Hospital, Day Care)
Discrimination (Sex, Race, Marital Status, Rank, Civilian-Military Relations, Maintenance vs. Other Jobs)

Fig. 5-1. Maintenance Analysis Guide

Equipment Support

Hand Tools
Test Equipment
Aerospace Ground Equipment
Automatic Test Equipment
Special Tools
Protective Clothing
Warm Clothing/Heaters
Weapon Systems (Prime Equipment, Subsystems, Support Systems, Age/Obsolescence, Design for Maintainability, Ease of Troubleshooting, Ease of Replacement)
Spare Parts (Availability, Serviceability, Reliability, Procurement, Cannibalization, WRS Kit, Bench Stock)

Methods Support

Technical Orders
Troubleshooting Procedures
Repair/Replacement Procedures
Wiring Diagrams/Schematics
Inspection Work Cards
Forms
Suggestion Program/AFTO 22
Computer Management Aids
Job Scheduling
Local Work Rules (Unwritten)
Regulations
Tool Management Procedures
Supply Procedures

Work Environment

Physical (Cold, Heat, Lighting, Noise, Space, Facilities, Restrooms, Dirt, Grease)
Psychological
Supervisory Style/Techniques (General)
Supervisory Style/Techniques of NCOs
Supervisory Style/Techniques of Officers
Supervisory Style/Techniques of Squadron Commander
Supervisory Style/Techniques of DCM and Higher
Work Pressure (General)
Work Pressure Created by Flying Schedule
Work Pressure Created by Requirement for Perfection
Work Pressure Created by Deadlines/Inadequate Time
Work Pressure Created by Mobility Exercises
Work Pressure Created by TDY

Fig. 5-1--Continued

Work Pressure Created by Length of Work Days/Shifts
Work Pressure Created by Inspections (ORI, MSEP, CEUG, QC, LORI)
Work Distractions/Non-Primary Duties (General)
Work Distractions Caused by Details
Work Distractions Caused by Temporary Duties
Work Distractions Caused by Extra Duties
Work Distractions Caused by Training
Work Distractions Caused by Meetings
Work Distractions Caused by Appointments (Dental, Records Check)
Work Distractions Caused by Administrative Paperwork
Work Distractions Caused by Task Interruptions
Verbal Communication
Organizational (Maintenance Structure)
Crew Chief System
Job Control
Quality Control
Span of Control
Unity of Direction/Command
Job Structure (General)
AFSCs
Duties within AFSCs
Unpleasant Duties
Unwanted Supervisory Role
Fiscal Management
Manpower Availability (General)
Technician Availability
Supervisory Availability
Officer Availability
Safety (Physical, Procedural)

Personnel Policy

Selection into the Air Force
Promotion (General)
Criteria/APRs Used for Promotion
Promotion Frequency
WAPS
"Up-or-Out" Policy
Career Path Availability
Below-the-Zone Promotion
Promotion by Local Authority
Assignment to Primary Job
Retention
Transfer (PCS)
Frequency of Transfer
Location of Transfer

Fig. 5-1--Continued

Involuntary Transfer
Duration of Stay in a Locale
Transfer of Spouse
Pay (General)
Basic Pay and Effects
Food Stamps
Working Spouse
"Moonlighting"
BAS/BAQ
Incentive Pay (Hazardous Duty)
Benefits (General)
CHAMPUS Health Benefits
Tuition Assistance
Reimbursement of PCS Expenses
Housing Referral/Sponsor Program
BX and Commissary
Retirement Pension and Other Benefits
Overseas COLA
Leave
Enlistment/Reenlistment Incentives
Reenlistment Bonus/Leave Buy-Back
Guaranteed Training
Base of Preference
VEAP/GI Bill
Recruiting/Indoctrination
Involuntary Separation
Draft vs. All Volunteer Force
Weight Program
AFR 35-10

Too General a Statement--Not Used

Figure 5-1--Continued

to every SAC Bombardment Wing Commander for study. We also suggest that the wing commanders use this guide to help them analyze their maintenance environment. That is, through the DCM or a maintenance work group, the wing commander could check to see if the problems listed in Table 4-1 (guide) exist in his command and to what extent or degree they exist.

A final recommendation is that an office of primary responsibility (OPR) be created within the DCS for logistics and maintenance at Headquarters SAC to coordinate the implementation of this guide. We feel that by involving an OPR at SAC Headquarters, the individual wing commanders and DCMs will have a point of contact to consolidate actions on their respective problems. Another key point for this suggestion is that the wing commanders will identify to SAC Headquarters problems beyond the control of the individual wings. Finally, SAC Headquarters, after consolidating all guides from the wings, can help the individual wings in solving problems that can be controlled and managed within SAC. This program could be conducted on a semi-annual basis or prior to wing commander conferences.

The ideas and recommendations offered by the authors of this research are an attempt to use the data presented in this research. As such, it can provide much insight into identifying and solving problems identified

by aircraft maintenance personnel in SAC. SAC's flying mission may be enhanced by making it a more effective and efficient operation. For more information concerning the collected data, or the use of the data, contact Miss Wendy Campbell, AFHRL, WPAFB, OH, 45433.

APPENDIX

SAMPLE OF STATEMENTS OBTAINED

Maintenance Supervisor

Many additional duties are piled on officers that they don't have time to do their primary jobs. Most of the additional duties could be eliminated or phased down. Examples: disaster preparedness, nuclear safety, mobility.

Maintenance agencies are gradually assuming the responsibilities of the support agencies. For supply: we have to keep track of their inventory problems. We have to know packaging and crating which they used to do, and we have to know their applicable regs. For transportation: we have to do care and feeding of our vehicles. We have to keep on the motor pool to get them to do the major repairs.

Bachelor living conditions are extremely crowded for both officers and enlisted. They have very little closet space. You can't store your winter issue, much less the rest of your belongings. There's very little privacy for the enlisted man--they have two to a room.

AF People feel that benefits are eroding--that's why some people are getting out. This gives us a lack of personnel in the middle ranks (staff and tech). Lots of people are getting out after one enlistment. So, when you subtract training, we have them productive for less than 3 years.

When I was in MMS, we had 29 major inspections in one year (from other than base agencies). We can't do our job for being inspected.

Single people are being discriminated against. Single people are allowed to ship 600 pounds overseas, married people can ship up to 12,000 pounds, depending on rank. I heard somebody is taking this issue to court.

Our people get depressed when they work on holidays and the rest of the base is closed.

Weapons Team Member

Job control often brings us in to load munitions when the aircraft is not ready.

We could load munitions in a hangar but the DCM doesn't want to take the responsibility. I've heard other bases are doing it.

I have no big complaints. I've been told "This is how the AF is and has been for a long time." So I have to adapt to it. It can't adapt to me. The military can't be like a civilian operation because of the nature of the mission. It can't be unionized or anything.

Recruiting is a farce. They are good salesmen. It was nothing like what the recruits expected. People would come into munitions if they knew the truth; it would just be different people. People sign away 4 years of their life, based on a broken promise. That's a real morale buster. I thought I was going to do electrical or electronic work. In 3 years I can cross-train out, but that's too long.

Shift changes and TDYs make it impossible to take outside classes. Some people get permanent shifts, but it looks hard to get an education.

Tech school should teach more of what people will be doing on their first assignment.

If you could see (before coming in the AF) that there aren't many good jobs or that many people are getting laid off the AF would look good. But coming right out of high school it seems a lot worse than it is.

When living in the barracks there's no place to garage your car. Some of the married housing garages are not that good.

Munitions Maintenance Specialist

From 0730 to 1600 we are working, and from 1600 to 1830 we are trying to catch up on our training commitments. All this broad training we get is at the expense of training in what we have to do every day. We could use some training in backing trailers and running forklifts.

Weather really kills maintenance. It makes the planes break more often and it makes people work slower. A half-hour job might take 1-1/2 to 2 hours in the cold. You have to use two men, the clothes and gloves are bulky, and the metal shrinks. You have to shovel snow and chip ice to open the doors on the storage buildings. All this puts us behind on the schedule.

We're supposed to be munitions specialists but we are used as handy men. We are sent here and there at a moment's notice. You can be working on something and they will send you on another job before you finish. When you get back to it, you find that somebody else was working your job and got called off it. Then you don't know how far they went.

When I came here three years ago, we had 50 people in our shop. Now we have 17, and 4 or 5 are working in the office. We used to have a permanent swing shift. Now we rotate 3 people at a time on swing shift. They come in at 1500 to get their training in.

They tell you not to stay in the cold too long, but when you go to the heater to warm up, they say "Why aren't you working?"

First-termers to a base like this kills their motivation. Their first assignment should be at bases where there's a wide variety of munitions to work on. Even though they give us training on the munitions we don't have, we can't get proficient without practice. Examples, are rockets, laser-guided missiles.

Most of our equipment is over 10 years old. My deuce-and-a-half is a '68. They break down often in cold weather. It may not have many miles on the odometer, but the engine gets a lot of use, just idling.

We get T.O. changes late. Once we were burned on an inspection because we didn't get a change that had come out a week earlier.

Wing Maintenance Superintendent

My lack of aircraft maintenance experience is a limiting factor in performing my job. I have been in aircraft maintenance five months. Prior to this I was a 1st Sgt for seven years. I feel that some sort of training should be given to people selected for these key positions, especially if selected from outside of maintenance.

Middle management people don't see the end objective of their jobs. They wouldn't believe the objectives if they were informed of them. This seems to be one of the difficulties of maintaining a peace-time mission.

Daily complaint of senior NCO's is that they don't have adequate manpower. Yet if working hours would be spent supporting the basic objective, manpower availability would be adequate. However, there is a definite lack of experienced manpower.

I think the complaint of not having enough middle-level management is a cop out excuse for not getting things done.

There is no adequate training program to teach people how to perform logical troubleshooting procedures.

Taking a highly skilled technician and forcing him to become a supervisor working behind a desk is usually detrimental to the individual and the unit. The person loses interest and performs poorly, and the unit loses his expertise. I recommend using some form of the Canadian trade pay system and Army specialist system to overcome this problem.

The best thing about the Air Force is that it provides one who has a limited education an opportunity for responsibility and power that isn't available in the civilian sector. Also you have a greater degree of job security in the Air Force.

To improve aircraft maintenance we need current equipment to work with and better access to replacement parts. Use equipment according to its age; don't continue to use it like it was new. We need longer time between aircraft.

Squadron Commander

AMS is hurt by a lack of people, caused generally by a greater demand from outside agencies for our people. We are only 85 percent manned and yet have to give up people for all kinds of jobs. We lose 1 supervisor each month for the correctional custody facility. They take 1 man from every squadron for a total of 7 to watch the people in jail and sometimes there are only 3 or 4 people there.

You get tired of the hypocracy in the AF. You are told you must care for people and they establish all these people programs, but the facts don't jibe with the talk. Reality shows us that the tendency is to throw a man out rather than try to save him. Even if the programs are valid, you don't get enough time to use them.

I don't have enough qualified people to be able to throw out people in trouble. SAC is paranoid about pot. I've lost 3 people in 1 year who got caught with pot even though it never caused one problem on the job. I had to send them to rehab and all 3 were eventually discharged.

Maintenance has excellent people, some of the best in the AF. They have good attitudes and only want someone to treat them like human beings. If you do that they will get the job done.

Training is a constant problem. As soon as we get a person trained they send him overseas. They have to be 100 percent manned and can't afford to train people as much, so we always seem to be training someone new, for someone else.

The AF has an identity problem. When we separated from the Army we threw out the baby with the bath water. We didn't bring along their traditions; but we have never really established any of our own. That's why our uniform style keeps changing so often. No one has a clear view of what we should look like or be.

We have a senior leadership problem here. The DCM creates it by not letting people do their job. He actually gets out on the flight line and critiques the work in progress. Then he will tell us how it should have been done. You can't talk to him about it because he is convinced he is right.

SAC seems to be making an effort to go back to the old ways of managing through fear. The trouble is that we are dealing with a different kind of people, more educated, and used to a better standard of living. You just can't treat them the way you used to treat the foot soldier and expect them to stay.

The AF doesn't make people think they are in a profession by the way they are treated on the job. They make your job seem less important by asking you to do lots of things outside your job.

Our equipment is old but still good. The brass want new equipment because it makes their jobs seem more important and opens up rank. They have decided the B-52 is too old, so they are spending less money on its upkeep.

We got A.T.E. that had a one-year warranty. We didn't unbox the equipment for over a year. When we set it up, it did not work. The company didn't honor the warranty. We had to send it to PMEL at Robins to get it fixed. The AF probably paid extra for that warranty.

A lot of our spare parts are not still being made. The other spare parts aren't coming out of depot fast enough because they think B-52 may not last.

A.G.E. branch is responsible for running a specialist shuttle (directed by job control) that runs AMS people to the flight line. 90% of the time they don't provide it. They think it is not important to their organization. We have to use our own vehicles to shuttle the specialists. We need better vehicles and better maintenance on the vehicles.

Job control doesn't use the best public relations when talking to people. Sometimes they argue when a shop chief says "No, I can't." They are not being kept informed of the true status of the aircraft. There should be better coordination from the flight line to job control. DMS is not giving them good status information.

If we had overtime pay, the managers would be more careful in asking people to work extra time. They might even cut the flying schedule to avoid having to pay for overtime.

Assistant Branch Chief, B-52 Maintenance

Crew chiefs need better tools. We used to have snap-on and craftsman. Now they say "made in Taiwan."

Mission Systems Branch Chief

We don't have time to do our job right. We have a heavy flying schedule. We do what we can in the time we have, but sometimes the birds have to fly when they are less than 100% fixed.

They don't give us time to go by the book. Then we get written up for it.

We can't do our own job so we can't support the other guy. DMS can't support us so we have to do some of their jobs. Example: applying power and standing fire-guard. Our people have to do things they haven't been trained to do. The problem is making people get out, and that just makes the problem worse.

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